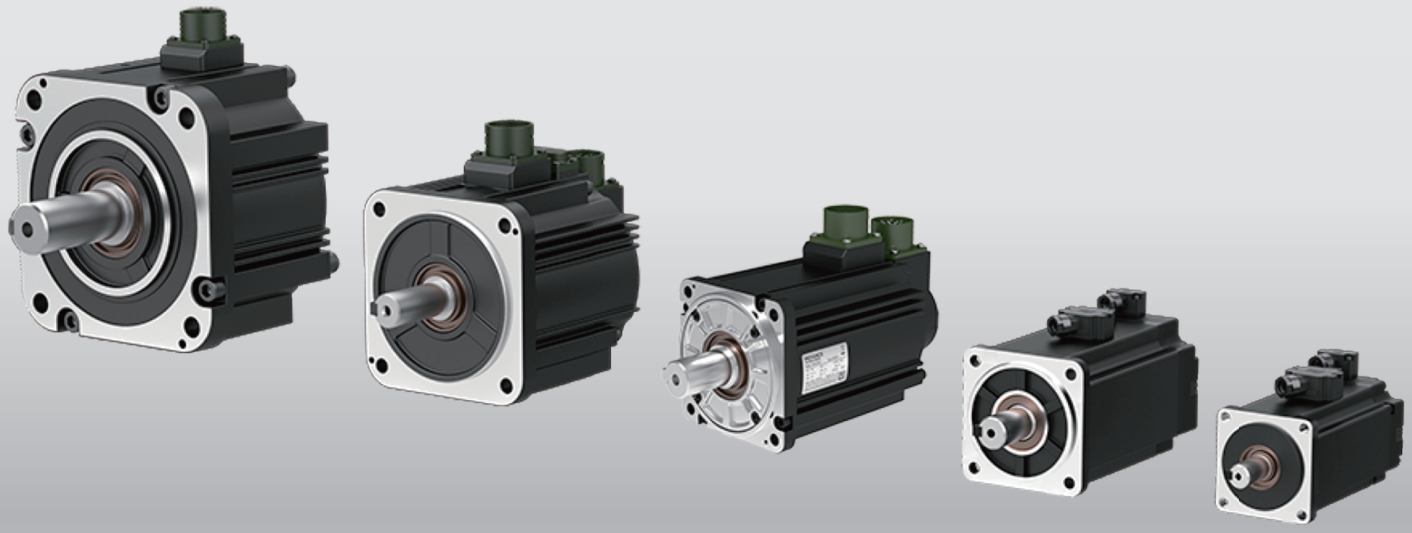
INOVANCE

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MS1-R-INT Series
Servo Drive with Battery-less Encoder

Selection Guide

Industrial Automation | Intelligent Elevator | New Energy Vehicle | Industrial Robot | Rail Transit

Data code PS00021688A00

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Preface

Introduction

Thank you for purchasing the MS1-R-INT series servo motor with battery-less encoder.

This motor supports a power range of 0.2 kW to 7.5 kW and frame sizes 60 to 180. Multiple types of inertia configuration and speed segment configuration are available. The encoder supports multi-turn counting without a battery.

This motor applies to accurate position control, speed control, and torque control in industries including semiconductors, lithium-ion batteries, silicon, machine tools, mobile phones, printing and packaging, pharmacy, textile, and display.

This user guide presents motor information, model selection instructions, and motor wiring methods. For detailed information on the motor function and performance, contact Inovance technical support

Documents provided by Inovance are subject to change without notice due to continuous product improvement.

Revision History

Date	Version	Revision
October 2025	A00	First release

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This guide is not delivered with the product. You can download the PDF version by the following methods:

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For details, see Product Warranty Card.

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1 Model Selection List

1.1 Applicable Model Selection List (SV680-INT Series)

Drives applicable to motors with 26-bit encoder

Servo motor				Servo drive			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class (V)	Size	Model	No.
Rating of MS1H1 (n_N= 3000 rpm, n_{max}=7000 rpm) series motors							
MS1H1-20B30CB-V631R-INT	MS1H1-20B30CB-V634R-INT	60	0.2	Single-phase/ Three-phase 220 V	A	SV680S1R6I-GINT	00002
MS1H1-40B30CB-V631R-INT	MS1H1-40B30CB-V634R-INT	60	0.4	Single-phase/ Three-phase 220 V		SV680S2R8I-GINT	00003
MS1H1-55B30CB-V631R-INT	-	80	0.55	Single-phase/ Three-phase 220 V	C	SV680S5R5I-GINT	00005
MS1H1-75B30CB-V631R-INT	MS1H1-75B30CB-V634R-INT	80	0.75	Single-phase/ Three-phase 220 V		SV680S5R5I-GINT	00005
MS1H1-10C30CB-V631R-INT	MS1H1-10C30CB-V634R-INT	80	1.0	Single-phase/ Three-phase 220 V	C	SV680S7R6I-GINT	00006
Ratings of MS1H2 (n_N= 3000 rpm, n_{max}= 6000 rpm) series motors							
MS1H2-10C30CB-V631R-INT	MS1H2-10C30CB-V634R-INT	100	1.0	Single-phase/ Three-phase 220 V	C	SV680S7R6I-GINT	00006
MS1H2-10C30CD-V631R-INT	MS1H2-10C30CD-V634R-INT	100	1.0	Three-phase 380 V		SV680T3R5I-GINT	10001
MS1H2-15C30CB-V631R-INT	MS1H2-15C30CB-V634R-INT	100	1.5	Single-phase/ Three-phase 220 V	D	SV680S012I-GINT	00007
MS1H2-15C30CD-V631R-INT	MS1H2-15C30CD-V634R-INT	100	1.5	Three-phase 380 V	C	SV680T5R4I-GINT	10002
MS1H2-20C30CB-V631R-INT	MS1H2-20C30CB-V634R-INT	100	2.0	Three-phase 220 V	E	SV680S018I-GINT	00008
MS1H2-20C30CD-V631R-INT	MS1H2-20C30CD-V634R-INT	100	2.0	Three-phase 380 V	D	SV680T8R4I-GINT	10003
MS1H2-25C30CB-V631R-INT	MS1H2-25C30CB-V634R-INT	100	2.5	Three-phase 220 V	E	SV680S022I-GINT	00009
MS1H2-25C30CD-V631R-INT	MS1H2-25C30CD-V634R-INT	100	2.5	Three-phase 380 V	D	SV680T012I-GINT	10004
MS1H2-30C30CB-V631R-INT	MS1H2-30C30CB-V634R-INT	130	3.0	Three-phase 220 V	E	SV680S022I-GINT	00009

Servo motor				Servo drive			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class (V)	Size	Model	No.
MS1H2-30C30CD-V631R-INT	MS1H2-30C30CD-V634R-INT	130	3.0	Three-phase 380 V	D	SV680T012I-GINT	10004
MS1H2-40C30CB-V631R-INT	MS1H2-40C30CB-V634R-INT	130	4.0	Three-phase 220 V	E	SV680S027I-GINT	00010
MS1H2-40C30CD-V631R-INT	MS1H2-40C30CD-V634R-INT	130	4.0	Three-phase 380 V		SV680T017I-GINT	10005
MS1H2-50C30CB-V631R-INT	MS1H2-50C30CB-V634R-INT	130	5.0	Three-phase 220 V		SV680S027I-GINT	00010
MS1H2-50C30CD-V631R-INT	MS1H2-50C30CD-V634R-INT	130	5.0	Three-phase 380 V		SV680T021I-GINT	10006
Ratings of MS1H3 (n_N=1500 rpm, n_{max}= 4500 rpm) series motors							
MS1H3-85B15CB-V631R-INT	MS1H3-85B15CB-V634R-INT	130	0.85	Single-phase/ Three-phase 220 V	C	SV680S7R6I-GINT	00006
MS1H3-85B15CD-V631R-INT	MS1H3-85B15CD-V634R-INT	130	0.85	Three-phase 380 V		SV680T3R5I-GINT	10001
MS1H3-13C15CB-V631R-INT	MS1H3-13C15CB-V634R-INT	130	1.3	Single-phase/ Three-phase 220 V	D	SV680S012I-GINT	00007
MS1H3-13C15CD-V631R-INT	MS1H3-13C15CD-V634R-INT	130	1.3	Three-phase 380 V	C	SV680T5R4I-GINT	10002
MS1H3-18C15CB-V631R-INT	MS1H3-18C15CB-V634R-INT	130	1.8	Three-phase 220 V	E	SV680S018I-GINT	00008
MS1H3-18C15CD-V631R-INT	MS1H3-18C15CD-V634R-INT	130	1.8	Three-phase 380 V	D	SV680T8R4I-GINT	10003
MS1H3-29C15CB-V631R-INT	MS1H3-29C15CB-V634R-INT	180	2.9	Three-phase 220 V	E	SV680S022I-GINT	00009
MS1H3-29C15CD-V631R-INT	MS1H3-29C15CD-V634R-INT	180	2.9	Three-phase 380 V	D	SV680T012I-GINT	10004
MS1H3-44C15CB-V631R-INT	MS1H3-44C15CB-V634R-INT	180	4.4	Three-phase 220 V	E	SV680S027I-GINT	00010
MS1H3-44C15CD-V631R-INT	MS1H3-44C15CD-V634R-INT	180	4.4	Three-phase 380 V	E	SV680T017I-GINT	10005
MS1H3-55C15CD-V631R-INT	MS1H3-55C15CD-V634R-INT	180	5.5	Three-phase 380 V		SV680T021I-GINT	10006
MS1H3-75C15CD-V631R-INT	MS1H3-75C15CD-V634R-INT	180	7.5	Three-phase 380 V		SV680T026I-GINT	10007
Ratings of MS1H4 (n_N= 3000 rpm, n_{max}=7000 rpm) series motors							

Servo motor				Servo drive			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class (V)	Size	Model	No.
MS1H4-20B30CB-V631R-INT	MS1H4-20B30CB-V634R-INT	60	0.2	Single-phase/ Three-phase 220 V	A	SV680S1R6I-GINT	00002
MS1H4-40B30CB-V631R-INT	MS1H4-40B30CB-V634R-INT	60	0.4	Single-phase/ Three-phase 220 V		SV680S2R8I-GINT	00003
MS1H4-55B30CB-V631R-INT	-	80	0.55	Single-phase/ Three-phase 220 V	C	SV680S5R5I-GINT	00005
MS1H4-75B30CB-V631R-INT	MS1H4-75B30CB-V634R-INT	80	0.75	Single-phase/ Three-phase 220 V		SV680S5R5I-GINT	00005
MS1H4-10C30CB-V631R-INT	MS1H4-10C30CB-V634R-INT	80	1.0	Single-phase/ Three-phase 220 V	C	SV680S7R6I-GINT	00006

Note

- Models of drives:
  - S - 220 V voltage class
  - T - 380 V voltage class
  - 1R6 - Rated output current = 1.6 A
    2R8 - Rated output current = 2.8 A
    …
    026 - Rated output current = 26 A
    027 - Rated output current = 27 A
- Different motors match different series of servo drives. The maximum speed and maximum torque output of the motor vary slightly. See the servo drive selection guide for details.
- Servo motors designed to work with 23-bit (V3) or 26-bit (V6) encoders have the same dimensions.
- The MS1-R series motors equipped with the V6/V3/A6/A3 encoders have the same dimensions.

1.2 Applicable Model Selection List (SV670-INT Series)

Drives applicable to motors with 23-bit encoder

Servo motor				Servo drive SV670*****I-INT			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class	Size	Model	No.
Rating of MS1H1 (n_N= 3000 rpm, n_{max}=7000 rpm) series motors							
MS1H1-20B30CB-V331R-INT	MS1H1-20B30CB-V334R-INT	60	0.2	Single-phase/ Three-phase 220 V	A	S1R6	00002
MS1H1-40B30CB-V331R-INT	MS1H1-40B30CB-V334R-INT	60	0.4	Single-phase/ Three-phase 220 V		S2R8	00003
MS1H1-55B30CB-V331R-INT	-	80	0.55	Single-phase/ Three-phase 220 V	C	S5R5	00005
MS1H1-75B30CB-V331R-INT	MS1H1-75B30CB-V334R-INT	80	0.75	Single-phase/ Three-phase 220 V		S5R5	00005
MS1H1-10C30CB-V331R-INT	MS1H1-10C30CB-V334R-INT	80	1.0	Single-phase/ Three-phase 220 V	C	S7R6	00006
Ratings of MS1H2 (n_N= 3000 rpm, n_{max}= 6000 rpm) series motors							
MS1H2-10C30CB-V331R-INT	MS1H2-10C30CB-V334R-INT	100	1.0	Single-phase/ Three-phase 220 V	C	S7R6	00006
MS1H2-10C30CD-V331R-INT	MS1H2-10C30CD-V334R-INT	100	1.0	Three-phase 380 V		T3R5	10001
MS1H2-15C30CB-V331R-INT	MS1H2-15C30CB-V334R-INT	100	1.5	Single-phase/ Three-phase 220 V	D	S012	00007
MS1H2-15C30CD-V331R-INT	MS1H2-15C30CD-V334R-INT	100	1.5	Three-phase 380 V	C	T5R4	10002
MS1H2-20C30CB-V331R-INT	MS1H2-20C30CB-V334R-INT	100	2.0	Three-phase 220 V	E	S018[1]	00008
MS1H2-20C30CD-V331R-INT	MS1H2-20C30CD-V334R-INT	100	2.0	Three-phase 380 V	D	T8R4	10003
MS1H2-25C30CB-V331R-INT	MS1H2-25C30CB-V334R-INT	100	2.5	Three-phase 220 V	E	S022	00009
MS1H2-25C30CD-V331R-INT	MS1H2-25C30CD-V334R-INT	100	2.5	Three-phase 380 V	D	T012[2]	10004
MS1H2-30C30CB-V331R-INT	MS1H2-30C30CB-V334R-INT	130	3.0	Three-phase 220 V	E	S022	00009
MS1H2-30C30CD-V331R-INT	MS1H2-30C30CD-V334R-INT	130	3.0	Three-phase 380 V	D	T012	10004

Servo motor				Servo drive SV670*****I-INT			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class	Size	Model	No.
MS1H2-40C30CB-V331R-INT	MS1H2-40C30CB-V334R-INT	130	4.0	Three-phase 220 V	E	S027	00010
MS1H2-40C30CD-V331R-INT	MS1H2-40C30CD-V334R-INT	130	4.0	Three-phase 380 V	E	T017	10005
MS1H2-50C30CB-V331R-INT	MS1H2-50C30CB-V334R-INT	130	5.0	Three-phase 220 V		S027	00010
MS1H2-50C30CD-V331R-INT	MS1H2-50C30CD-V334R-INT	130	5.0	Three-phase 380 V		T021[3]	10006
Ratings of MS1H3 (n_N=1500 rpm, n_{max}= 4500 rpm) series motors							
MS1H3-85B15CB-V331R-INT	MS1H3-85B15CB-V334R-INT	130	0.85	Single-phase/ Three-phase 220 V	C	S7R6	00006
MS1H3-85B15CD-V331R-INT	MS1H3-85B15CD-V334R-INT	130	0.85	Three-phase 380 V		T3R5	10001
MS1H3-13C15CB-V331R-INT	MS1H3-13C15CB-V334R-INT	130	1.3	Single-phase/ Three-phase 220 V	D	S012	00007
MS1H3-13C15CD-V331R-INT	MS1H3-13C15CD-V334R-INT	130	1.3	Three-phase 380 V	C	T5R4	10002
MS1H3-18C15CB-V331R-INT	MS1H3-18C15CB-V334R-INT	130	1.8	Three-phase 220 V	D	S012	00007
MS1H3-18C15CD-V331R-INT	MS1H3-18C15CD-V334R-INT	130	1.8	Three-phase 380 V	D	T8R4	10003
MS1H3-29C15CB-V331R-INT	MS1H3-29C15CB-V334R-INT	180	2.9	Three-phase 220 V	E	S022	00009
MS1H3-29C15CD-V331R-INT	MS1H3-29C15CD-V334R-INT	180	2.9	Three-phase 380 V	D	T012	10004
MS1H3-44C15CB-V331R-INT	MS1H3-44C15CB-V334R-INT	180	4.4	Three-phase 220 V	E	S027	00010
MS1H3-44C15CD-V331R-INT	MS1H3-44C15CD-V334R-INT	180	4.4	Three-phase 380 V	E	T017	10005
MS1H3-55C15CD-V331R-INT	MS1H3-55C15CD-V334R-INT	180	5.5	Three-phase 380 V		T021	10006
MS1H3-75C15CD-V331R-INT	MS1H3-75C15CD-V334R-INT	180	7.5	Three-phase 380 V		T026	10007
Ratings of MS1H4 (n_N= 3000 rpm, n_{max}=7000 rpm) series motors							
MS1H4-20B30CB-V331R-INT	MS1H4-20B30CB-V334R-INT	60	0.2	Single-phase/ Three-phase 220 V	A	S1R6	00002
MS1H4-40B30CB-V331R-INT	MS1H4-40B30CB-V334R-INT	60	0.4	Single-phase/ Three-phase 220 V		S2R8	00003

Servo motor				Servo drive SV670*****I-INT			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class	Size	Model	No.
MS1H4-55B30CB-V331R-INT	-	80	0.55	Single-phase/ Three-phase 220 V	C	S5R5	00005
MS1H4-75B30CB-V331R-INT	MS1H4-75B30CB-V334R-INT	80	0.75	Single-phase/ Three-phase 220 V		S5R5	00005
MS1H4-10C30CB-V331R-INT	MS1H4-10C30CB-V334R-INT	80	1.0	Single-phase/ Three-phase 220 V	C	S7R6	00006

Note

- [1] See the torque-speed characteristics curves of this model for drives with S012. The drive parameters does not change.
- [2] See the torque-speed characteristics curves of this model for drives with T8R4. The drive parameters does not change.
- [3] See the torque-speed characteristics curves of this model for drives with T017. The drive parameters does not change.
- [4] See the torque-speed characteristics curves of this model for drives with S018. The drive parameters does not change.
- Models of drives:
  - S - 220 V voltage class
  - T - 380 V voltage class
  - 1R6 - Rated output current = 1.6 A
    2R8 - Rated output current = 2.8 A
    …
    026 - Rated output current = 26 A
    027 - Rated output current = 27 A
- Different motors match different series of servo drives. The maximum speed and maximum torque output of the motor vary slightly. See the selection guide of the servo drive for details.
- Servo motors designed to work with 23-bit (V3) or 26-bit (V6) encoders have the same dimensions.
- The MS1-R series motors equipped with the V6/V3/A6/A3 encoders have the same dimensions.

1.3 Applicable Model Selection List (SV660-INT Series)

Drives applicable to motors with 23-bit encoder

Servo motor				Servo drive SV660*****I-INT			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class	Size	Model	No.
Rating of MS1H1 (n_N= 3000 rpm, n_{max}=7000 rpm) series motors							
MS1H1-20B30CB-V331R-INT	MS1H1-20B30CB-V334R-INT	60	0.2	Single-phase 220 V	A	S1R6	00002
MS1H1-40B30CB-V331R-INT	MS1H1-40B30CB-V334R-INT	60	0.4	Single-phase 220 V		S2R8	00003
MS1H1-55B30CB-V331R-INT	-	80	0.55	Single-phase 220 V	B	S5R5	00005
MS1H1-75B30CB-V331R-INT	MS1H1-75B30CB-V334R-INT	80	0.75	Single-phase 220 V		S5R5	00005
MS1H1-10C30CB-V331R-INT	MS1H1-10C30CB-V334R-INT	80	1.0	Single-phase/ Three-phase 220 V	C	S7R6	00006
Ratings of MS1H2 (n_N= 3000 rpm, n_{max}= 6000 rpm) series motors							
MS1H2-10C30CB-V331R-INT	MS1H2-10C30CB-V334R-INT	100	1.0	Single-phase/ Three-phase 220 V	C	S7R6	00006
MS1H2-10C30CD-V331R-INT	MS1H2-10C30CD-V334R-INT	100	1.0	Three-phase 380 V		T3R5	10001
MS1H2-15C30CB-V331R-INT	MS1H2-15C30CB-V334R-INT	100	1.5	Single-phase/ Three-phase 220 V	D	S012	00007
MS1H2-15C30CD-V331R-INT	MS1H2-15C30CD-V334R-INT	100	1.5	Three-phase 380 V	C	T5R4	10002
MS1H2-20C30CB-V331R-INT	MS1H2-20C30CB-V334R-INT	100	2.0	Single-phase/ Three-phase 220 V	D	S012	00007
MS1H2-20C30CD-V331R-INT	MS1H2-20C30CD-V334R-INT	100	2.0	Three-phase 380 V	D	T8R4	10003
MS1H2-25C30CD-V331R-INT	MS1H2-25C30CD-V334R-INT	100	2.5	Three-phase 380 V	D	T012[1]	10004
MS1H2-30C30CD-V331R-INT	MS1H2-30C30CD-V334R-INT	130	3.0	Three-phase 380 V	D	T012	10004
MS1H2-40C30CD-V331R-INT	MS1H2-40C30CD-V334R-INT	130	4.0	Three-phase 380 V	E	T017	10005
MS1H2-50C30CD-V331R-INT	MS1H2-50C30CD-V334R-INT	130	5.0	Three-phase 380 V		T021[2]	10006
Ratings of MS1H3 (n_N=1500 rpm, n_{max}= 4500 rpm) series motors							

Servo motor				Servo drive SV660*****I-INT			
Models without brake	Models with brake	Frame size (mm)	Capacity (kW)	Voltage class	Size	Model	No.
MS1H3-85B15CB-V33*R	MS1H3-85B15CB-V334R-INT	130	0.85	Single-phase/ Three-phase 220 V	C	S7R6	00006
MS1H3-85B15CD-V331R-INT	MS1H3-85B15CD-V334R-INT	130	0.85	Three-phase 380 V		T3R5	10001
MS1H3-13C15CB-V331R-INT	MS1H3-13C15CB-V334R-INT	130	1.3	Single-phase/ Three-phase 220 V	D	S012	00007
MS1H3-13C15CD-V331R-INT	MS1H3-13C15CD-V334R-INT	130	1.3	Three-phase 380 V	C	T5R4	10002
MS1H3-18C15CB-V331R-INT	MS1H3-18C15CB-V334R-INT	130	1.8	Single-phase/ Three-phase 220 V	D	S012	00007
MS1H3-18C15CD-V331R-INT	MS1H3-18C15CD-V334R-INT	130	1.8	Three-phase 380 V	D	T8R4	10003
MS1H3-29C15CD-V331R-INT	MS1H3-29C15CD-V334R-INT	180	2.9	Three-phase 380 V	D	T012	10004
MS1H3-44C15CD-V331R-INT	MS1H3-44C15CD-V334R-INT	180	4.4	Three-phase 380 V	E	T017	10005
MS1H3-55C15CD-V331R-INT	MS1H3-55C15CD-V334R-INT	180	5.5	Three-phase 380 V		T021	10006
MS1H3-75C15CD-V331R-INT	MS1H3-75C15CD-V334R-INT	180	7.5	Three-phase 380 V		T026	10007
Ratings of MS1H4 (n_N= 3000 rpm, n_{max}=7000 rpm) series motors							
MS1H4-20B30CB-V331R-INT	MS1H4-20B30CB-V334R-INT	60	0.2	Single-phase 220 V	A	S1R6	00002
MS1H4-40B30CB-V331R-INT	MS1H4-40B30CB-V334R-INT	60	0.4	Single-phase 220 V		S2R8	00003
MS1H4-55B30CB-V331R-INT	-	80	0.55	Single-phase 220 V	B	S5R5	00005
MS1H4-75B30CB-V331R-INT	MS1H4-75B30CB-V334R-INT	80	0.75	Single-phase 220 V		S5R5	00005
MS1H4-10C30CB-V331R-INT	MS1H4-10C30CB-V334R-INT	80	1.0	Single-phase/ Three-phase 220 V		S7R6	00006

Note

- [1] See the torque-speed characteristics curves of this model for drives with T8R4. The drive parameters does not change.
- [2] See the torque-speed characteristics curves of this model for drives with T017. The drive parameters does not change.
- Models of drives:
  - S - 220 V voltage class
  - T - 380 V voltage class
  - 1R6 - Rated output current = 1.6 A
    2R8 - Rated output current = 2.8 A
    …
    026 - Rated output current = 26 A
    027 - Rated output current = 27 A
- Different motors match different series of servo drives. The maximum speed and maximum torque output of the motor vary slightly. See the servo drive selection guide for details.
- Servo motors designed to work with 23-bit (V3) or 26-bit (V6) encoders have the same dimensions.
- The MS1-R series motors equipped with the V6/V3/A6/A3 encoders have the same dimensions.

2 Product Information

2.1 Product Characteristics

- **Small size**
  - Small size with high torque output
  - Mounting flange, output shaft, and aviation connectors compatible with last generation of motors (MS1-Z series)
- **High speed**
  - Maximum speed of MS1H1 and MS1H4 (frame sizes 60/80) motors improved from 6000 rpm to 7000 rpm
  - Maximum speed of MS1H2 motors improved from 5000 rpm to 6000 rpm
  - Maximum speed of MS1H3 (frame sizes 130/180) motors improved from 3000 rpm to 4500 rpm
- **Low temperature rise rate**
  - Optimized electromagnetic circuits to reduce the temperature rise rate
  - Frame sizes 60/80: Temperature rise reduced by 20K compared with previous generation of motors
- **High reliability**
  Metal code disc used for the optical encoder to prevent the risk of fracture
- **Compliant with Energy Efficiency Class 1 in China**
  Inovance motors of 550 W to 7.5 kW meeting the energy efficiency requirements of GB30253-Class 1 in China
- **Equipped with battery-less absolute encoder**
  - Battery-less models developed based on the technical platform for MS1-R-INT series motors
  - High-speed and high-precision positioning control available through 23-bit and 26-bit high-resolution encoders
  - No need for external batteries to save multi-turn count, preventing device fault caused by exhaustion of batteries and removing the need for maintenance

2.2 Model and Nameplate

Model description

MS1 H1 - 75B 30C B - V3 3 1 R - INT
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① **MS1 series servo motor**	② **Inertia and capacity** H1: Low inertia and small capacity H2: low inertia and medium capacity H3: medium inertia and medium capacity H4: medium inertia and small capacity	③ **Rated power (W)** One letter and two digits B: x 10 C: x 100 Example: 75B: 750 W
④ **Rated speed (rpm)** One letter and two digits B: x 10 C: x 100 Example: 30C: 3000 rpm	⑤ **Voltage class** B: 200 V D: 400 V	⑥ **Encoder type** One letter and one digit V6: Battery-less 26-bit multi-turn absolute encoder V3: Battery-less 23-bit multi-turn absolute encoder
⑦ **Shaft connection mode** 3: Solid shaft, with key and threaded hole	⑧ **Brake, reducer, oil seal** 1: With oil seal but no brake 4: With oil seal and brake	⑨ **Sub-series number** R: R version ⑩ **Non-standard functions** INT: Global version

Note

This section only describes the definition of the naming rules, which does not represent the specific motor models. For details of the models, see section "Model Selection List".

For other non-standard demands, contact Inovance technical support.

Nameplate description

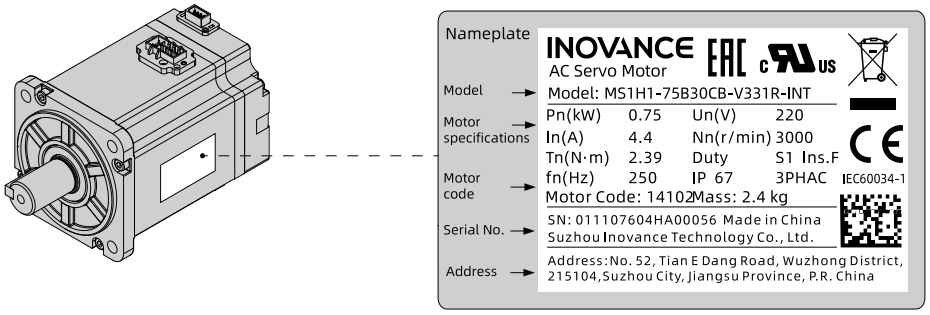


Figure 2-1 Model and nameplate

2.3 Components

Motor with frame sizes 60/80

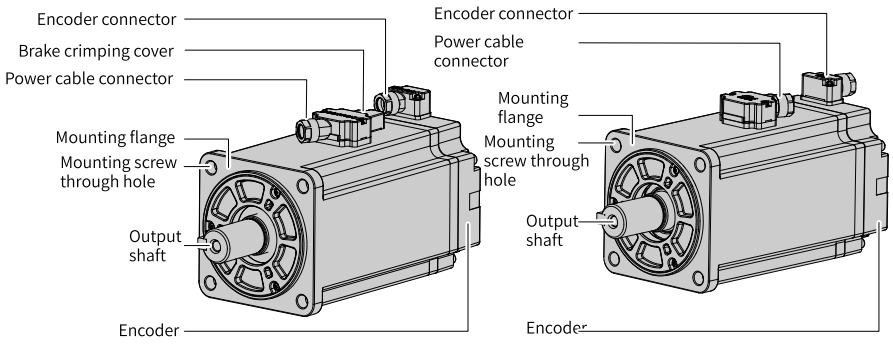


Figure 2-2 Components of the motor (frame sizes 60/80) (Left: Front outlet; Right: Rear outlet)

Motor with frame sizes 100/130/180

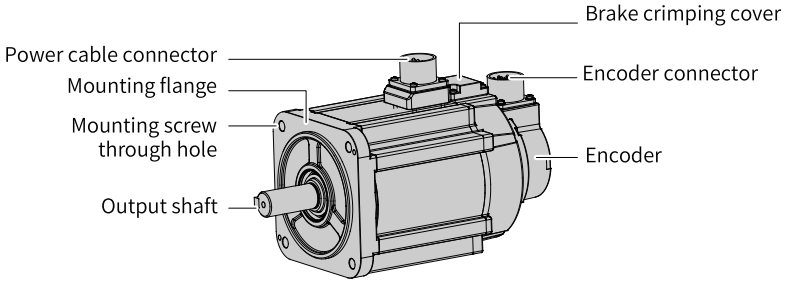


Figure 2-3 Components of the motor (frame sizes 100/130/180)

2.4 Motor Model

Motor type		Rated output capacity (kW)	Encoder
Low inertia, small capacity	MS1H1 	0.2, 0.4, 0.55, 0.75, 1.0	V6: Battery-less 26-bit multi-turn absolute encoder V3: Battery-less 23-bit multi-turn absolute encoder
Low inertia, medium capacity	MS1H2 	1.0, 1.5, 2.0, 2.5, 3.0, 4.0, 5.0	V6: Battery-less 26-bit multi-turn absolute encoder V3: Battery-less 23-bit multi-turn absolute encoder

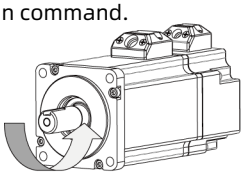
Motor type		Rated output capacity (kW)	Encoder
Medium inertia, medium capacity	MS1H3 	0.85, 1.3, 1.8, 2.9, 4.4, 5.5, 7.5	V6: Battery-less 26-bit multi-turn absolute encoder V3: Battery-less 23-bit multi-turn absolute encoder
Medium inertia, small capacity	MS1H4 	0.2, 0.4, 0.55, 0.75, 1.0	V6: Battery-less 26-bit multi-turn absolute encoder V3: Battery-less 23-bit multi-turn absolute encoder

Note

- V6 - 26-bit absolute encoder (resolution: About 67.1 million pulse/rev, internal 1024 S/R) + 16-bit multi-turn (operating range: 65536 revolutions)
- V3 - 23-bit absolute encoder (resolution: About 8.38 million pulse/rev, internal 1024 S/R) + 16-bit multi-turn (operating range: 65536 revolutions)

3 Product Specifications

3.1 Mechanical Specifications

Item		Description
Duty cycle		S1 (Continuous duty)
Vibration level [1]		V15
Insulation resistance		500 VDC, above 10 MΩ
Excitation mode		Permanent magnetic
Mounting method		Flange
Thermal class		F
Insulation voltage		1500 VAC for 1 min (220 V class) 1800 VAC for 1 min (380 V class)
Degree of protection		IP67 (except the shaft opening)
Direction of rotation		Rotates counterclockwise (CCW) when viewed from the shaft extension side with the forward run command.  CCW
Ambient condition	Ambient temperature	0℃ to 40℃ (non-frozen) (Derate the motor based on the derating curve for temperatures above 40℃.)
	Ambient humidity	20% to 80% RH (without condensation)
	Installation location	• Indoors and free from corrosive or explosive gases • Well ventilated and with minimum amount of dust, waste and moisture • Convenient for inspection and cleanup • Derating is required only for installation altitudes higher than 1000 m. *"3.3 Derating Characteristics" on page 24* • Away from sources that may generate a strong magnetic field • Away from heating sources such as a heating stove • Use the motor with oil seal in places with grinding fluid, oil mist, iron powders or cuttings. • The oil seal is only dust-proof. It cannot withstand the intrusion of oil for a long term. • Not applicable to vacuum environment • Not applicable to inching (not full-turn) [2] and may be stuck • The motor with brake may generate a pattering sound, which is normal. • In upstream applications of the motor, ensure the force applied on the shaft end is lower than the allowable axial force and radial force of the motor. • Do not keep the system operating continuously at natural frequency. Exceeding the allowable vibration value may damage the system.
	Storage environment	Observe the following requirements for storing a de-energized motor. • Storage temperature: -20℃ to +60℃ (non-frozen) • Storage humidity: 20% to 80% RH (without condensation)

Item		Description
Shock resistance [3] [5]	Shock acceleration (flange face as standard)	490 m/s²
	Number of shocks	2
Vibration resistance [4][5]	Vibration acceleration (flange face as standard)	Radial 49 m/s² Axial 24.5 m/s²

Note

- [1] Vibration class V15 indicates that the amplitude of vibration is lower than 15 μm when an individual motor rotates at rated values.
- [2] For applications that require the motor shaft to swing back and forth at a certain angle, contact Inovance.
- [3] The resistance for shock in the vertical direction when the motor is mounted with the shaft in a horizontal position is shown in the preceding table.
- [4] The vertical, side-to-side, and front-to-back resistance for vibration in three directions when the servo motor is mounted with the shaft in a horizontal position is shown in the preceding table.
- [5] The vibration intensity applied on the motor is affected by the transmission structure, alignment accuracy, mounting conditions, and external vibration. These factors may enhance the vibration applied on the motor. When the maximum allowable vibration limit is exceeded, the motor may fail. Therefore, take necessary measures to limit resonance.
- The vibration intensity applied on the motor varies with applications.

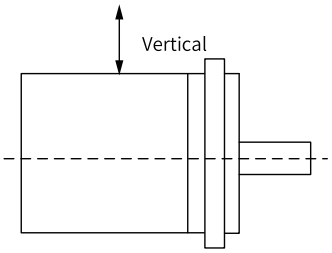


Figure 3-1 Shock applied on the motor

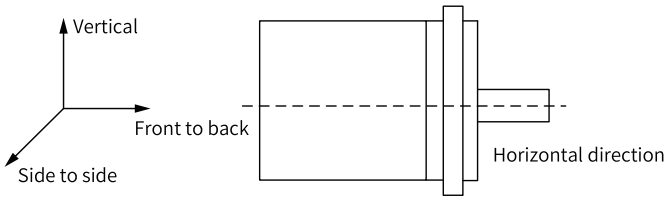


Figure 3-2 Vibration applied on the motor

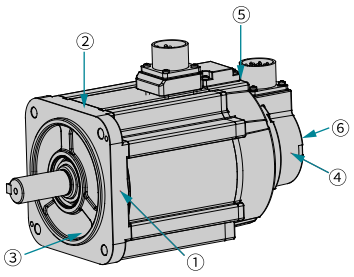


Figure 3-3 Max. allowable vibration limit of the motor

Direction	Measuring point	Limit value (10 Hz to 2000 Hz)
Radial	①②	49 m/s^2
	④⑤	49 m/s^2
Axial	③	24.5 m/s^2
	⑥	24.5 m/s^2

Note

The preceding vibration/shock standards cannot be applied for a long term. For long-term application needs, contact Inovance.

3.2 Overload Characteristics

This product is compliant with NEC and CEC requirements and equipped with protective functions against motor overload and overtemperature.

The following overload protection curve applies to hot start at an ambient temperature of 40℃, which cannot guarantee continuous duty under 100%+ output. During use, keep the effective torque of the load within the continuous duty zone.

To protect different load motors, set the motor overload protection gain based on the overload capacity of the motor. Use the default gains in general conditions, however, when one of the following condition occurs, change the gains based on the temperature rise condition of the motor:

- The motor works in environments with high ambient temperature.
- The motor is in cyclic motion featuring a short motion cycle and frequent acceleration/ deceleration.
- Overload thermal protection only occurs during continuous energized operation. You need to check the motor temperature when the drive is powered off.

Motor overload protection curve is as follows:

- **MS1H1/H4 (frame sizes 60/80)**

Load ratio (%)	Operating time (s)
120	230
130	80
140	40
150	30
160	20
170	17
180	15
190	12
200	10
210	8.5
220	7
230	6
240	5.5
250	5
300	3
350	2

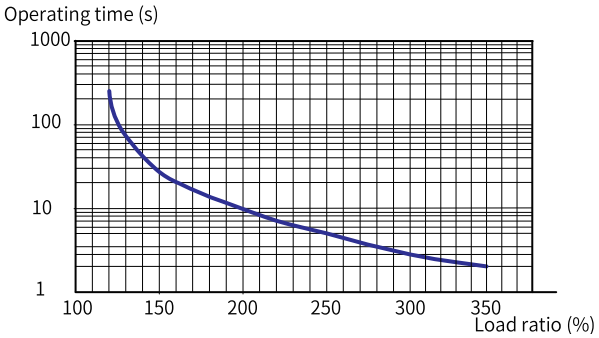


Figure 3-4 MS1H1/H4 (frame sizes 40/60/80) series motor overload curve

Note

The maximum torque of H1 and H4 models is the rated torque x 3.5.

- **MS1H2/MS1H3**

Load ratio (%)	Operating time (s)
115	6000
120	2533
125	1226
130	915
135	769
140	527
145	352
150	221
155	128
160	99
165	83
170	67
175	55
180	49
185	45
190	41
195	38
200	34
205	31
210	28
215	24
220	22
225	21
230	19
235	18
240	16
245	14
250	13
255	12
260	11
265	10
270	9
275	9

Load ratio (%)	Operating time (s)
280	8
285	7
290	6
295	5
300	5

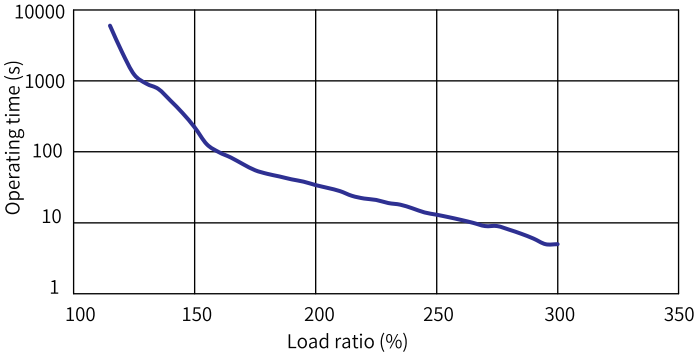


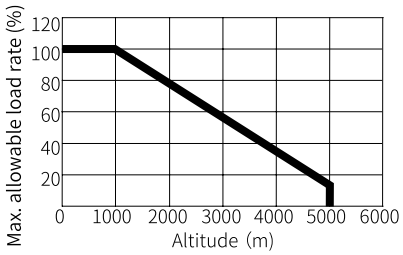
Figure 3-5 Overload curve of MS1H2 and MS1H3 series motors

Note

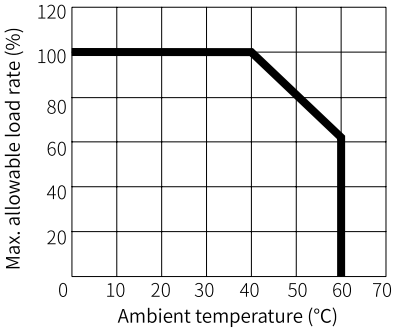
- The maximum torque of H2 models is the rated torque x 3.
- The maximum torque of H3 models is the rated torque x 2.5.

3.3 Derating Characteristics

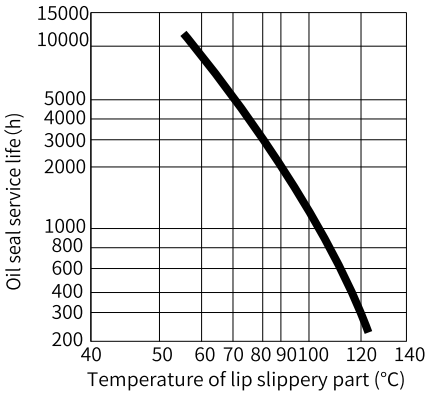
- **Altitude-based derating curve**



- **Temperature-based derating curve**



3.4 Temperature Curve of the Oil Seal



3.5 Load Moment of Inertia

The load moment of inertia represents the ratio of load inertia to the rotor inertia. The higher the load inertia ratio, the weaker the responsiveness can be. An excessively high inertia ratio can result in unstable operation. The permissible load inertia ratio of the servo motor is limited. The value is a general standard and varies according to the driving conditions of the servo motor.

An overvoltage alarm may occur during deceleration if the load moment of inertia exceeds the allowable value. For servo drives with a built-in braking resistor, an overload alarm my be present. In case of such alarms, take one of the following measures:

- Reduce the torque limit values.
- Reduce the deceleration rate.
- Reduce the maximum speed.
- Install an external braking resistor if the warning cannot be cleared using the above measures.

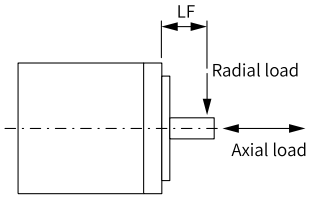
Caution

- For the built-in braking resistor of the drive, see Components.
- Even you use a built-in resistor, the energy generated in some regenerative conditions may exceed the allowable capacity loss (W) of the resistor. In this case, an external braking resistor is required.

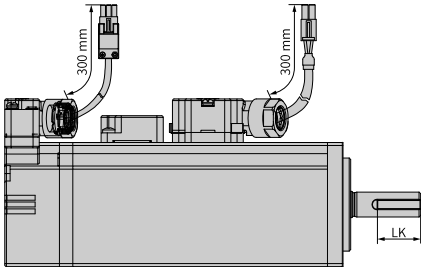
4 Motor Selection

4.1 Model Selection

- Description of torque-speed characteristics curves:
  - Technical data and torque/speed characteristic values in the following tables are applicable to motors working with Inovance servo drives with the armature coil temperature being 20°C.
  - Continuous duty zone: Refers to a series of states in which the motor can operate safely and continuously. The actual torque must be located in this area.
  - Intermittent duty zone: Refers to a series of states in which the motor can run in a short time when the actual torque is greater than the rated torque.
- The characteristic values are obtained in cases where the motor is installed with the following heatsink (unit: mm):
  - MS1H1/MS1H4: 250 x 250 x 6 (mm) (aluminum)
  - MS1H2-10C to 25C: 400 x 400 x 20 (steel)
  - MS1H2-30C to 50C: 400 x 400 x 20 (steel)
  - MS1H3-85B to 18C: 400 x 400 x 20 (steel)
  - MS1H3-29C to 55C: 550 x 550 x 30 (mm) (aluminum)
  - MS1H3-75C: 700 x 700 x 30 (mm) (aluminum)
- Radial and axial loads of the motor:



- Dimensions of flying leads type motors
  Flying leads type motors with frame sizes 60/80 (model ended with "-S") provide flying leads of about 300 mm in length, as shown in the following figure.



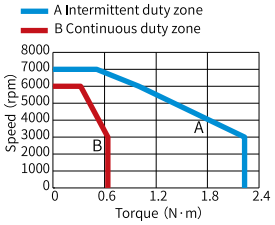
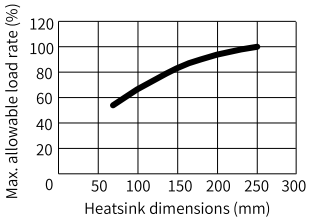
- As shown in the preceding figure, the product dimensions in sections 4.2 to 4.5 are marked with LK values. LK indicates the length of the shaft key.
- The MS1H3 (frame sizes 130/180) series motor comes with a keyway. When the operating speed is above 3000 rpm, the motor must run with the keyway. If you need a motor that can run without a keyway at speeds higher than 3000 rpm, contact Inovance.

Note

- Values inside the parentheses in sections 4.2 to 4.5 apply to motors with brake.
- The motor with oil seal must be derated by 10% during use.
- An external 24 VDC power supply is needed for the brake. For the cable connecting the DC power supply to the motor brake, it is recommended to use cables with a diameter of 0.2 mm^2 or above for motors with a power of 750 W or below. For motors above 750 W, it is recommended to use cables with a cross sectional area of 0.8 mm^2 or above for motors. The brake cannot share the power supply with other appliances to prevent the voltage or current from falling due to the simultaneous operation of other electrical appliances, which may result in brake malfunction.
- Do not use a power supply for multiple brakes during use of the motor brake. Otherwise, the coil can be short-circuited after the brake is damaged due to dry friction, resulting in release failure of other brakes that connected to this power supply in parallel, which can lead to dry friction of other brakes.
- The brake apply time and release time vary with the discharge circuit. Check the actual action delay of the product during use. The holding brake cannot be used for braking purpose.

4.2 MS1H1 Series Motors with Low Inertia and Small Capacity

4.2.1 MS1H1-20B30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	0.2		
Voltage (V)	220		
Rated torque (N·m)	0.64		
Maximum torque (N·m)	2.24		
Rated current (A)	1.5		Heatsink-based derating curve
Maximum current (A)	5.3		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.51		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.094±10%	
	Motor with brake	0.106±10%	

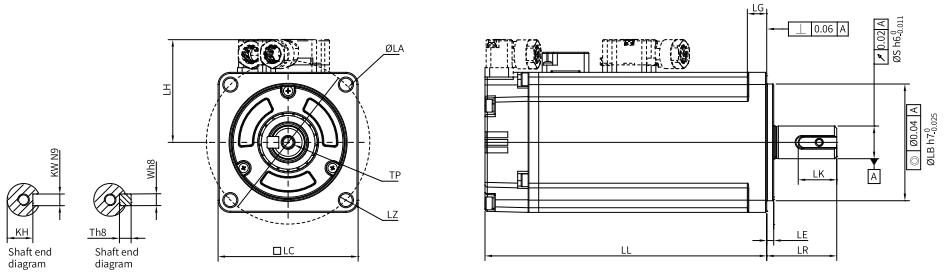
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1

Allowable load

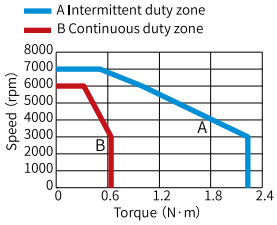
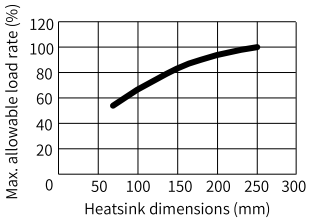
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	75.5 (103)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x12	$16^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	0.80 (1.17)

4.2.2 MS1H1-20B30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	0.2		
Voltage (V)	220		
Rated torque (N·m)	0.64		
Maximum torque (N·m)	2.24		
Rated current (A)	1.5		Heatsink-based derating curve
Maximum current (A)	5.3		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.51		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	0.094±10%	
	Motor with brake	0.106±10%	

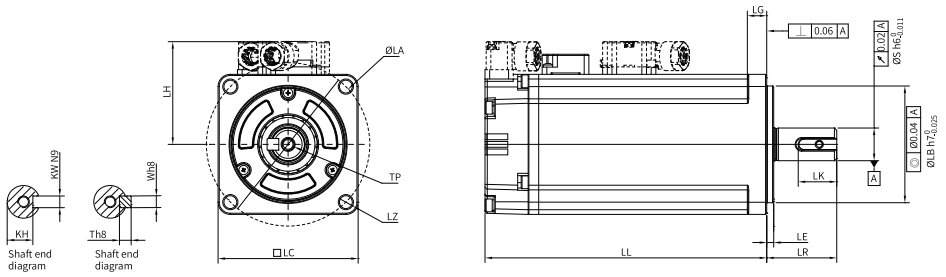
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1

Allowable load

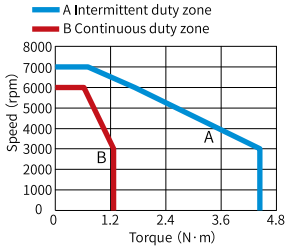
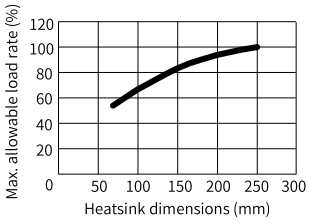
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	75.5 (103)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x12	$16^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	0.80 (1.17)

4.2.3 MS1H1-40B30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	0.4		
Voltage (V)	220		
Rated torque (N·m)	1.27		
Maximum torque (N·m)	4.45		
Rated current (A)	2.5		Heatsink-based derating curve
Maximum current (A)	9.8		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.57		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.145±10%	
	Motor with brake	0.157±10%	

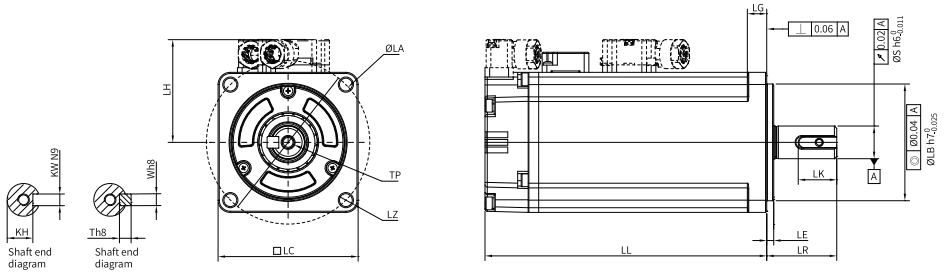
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1

Allowable load

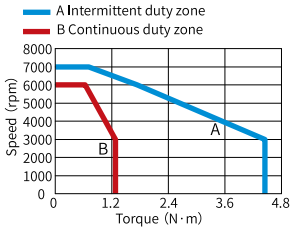
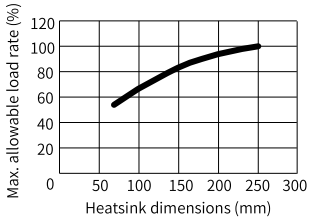
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	93 (121)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x12	$16^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	1.11 (1.48)

4.2.4 MS1H1-40B30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	0.4		
Voltage (V)	220		
Rated torque (N·m)	1.27		
Maximum torque (N·m)	4.45		
Rated current (A)	2.5		Heatsink-based derating curve
Maximum current (A)	9.8		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.57		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	0.145±10%	
	Motor with brake	0.157±10%	

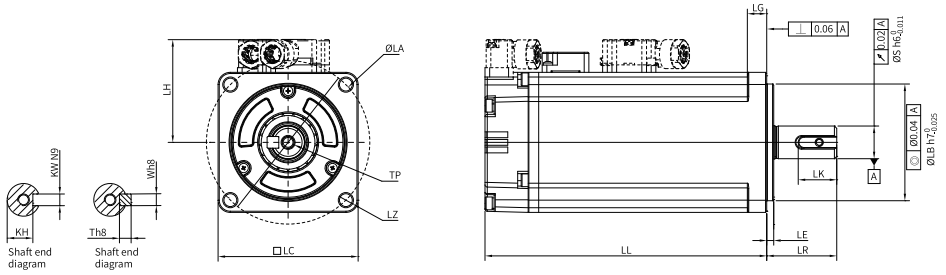
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1

Allowable load

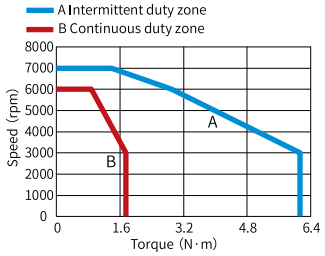
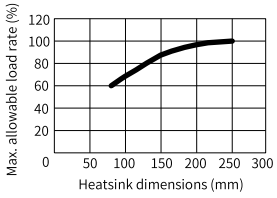
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	93 (121)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x12	$16^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	1.11 (1.48)

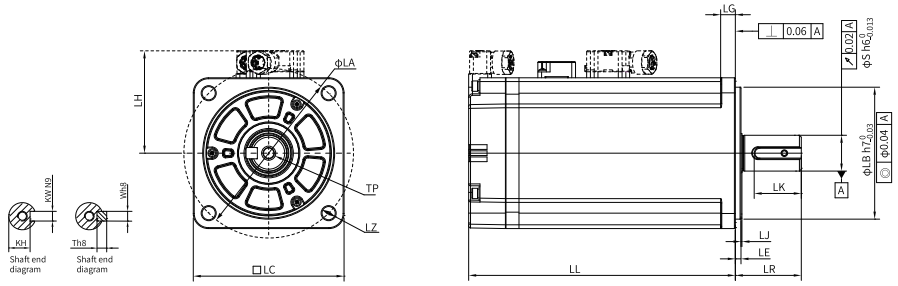
4.2.5 MS1H1-55B30CB-V631R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	0.55		
Voltage (V)	220		
Rated torque (N·m)	1.75		
Maximum torque (N·m)	6.13		
Rated current (A)	3.9		Heatsink-based derating curve
Maximum current (A)	15		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.51		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.55±10%	
	Motor with brake	-	

Allowable load

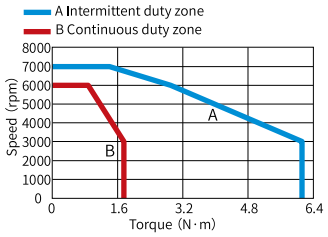
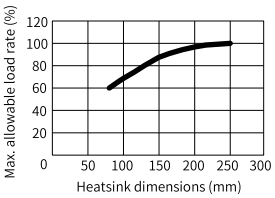
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	96.7	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	1.88

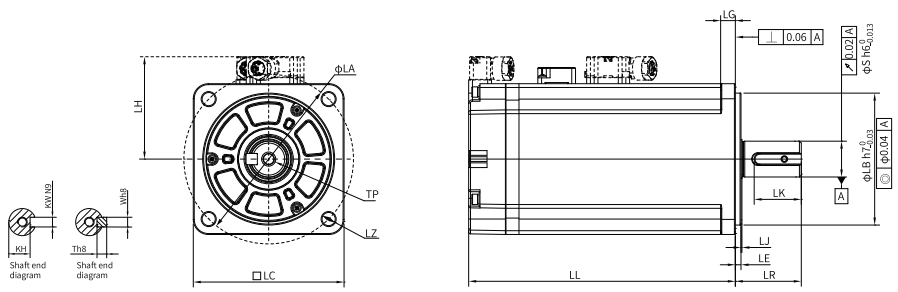
4.2.6 MS1H1-55B30CB-V331R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	0.55		
Voltage (V)	220		
Rated torque (N·m)	1.75		
Maximum torque (N·m)	6.13		
Rated current (A)	3.9		Heatsink-based derating curve
Maximum current (A)	15		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.51		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.55±10%	
	Motor with brake	-	

Allowable load

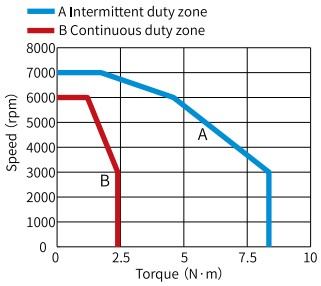
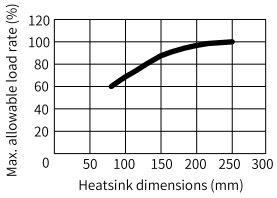
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	96.7	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	1.88

4.2.7 MS1H1-75B30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	0.75		
Voltage (V)	220		
Rated torque (N·m)	2.39		
Maximum torque (N·m)	8.36		
Rated current (A)	4.4		Heatsink-based derating curve
Maximum current (A)	16.9		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.62		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.68±10%	
	Motor with brake	0.71±10%	

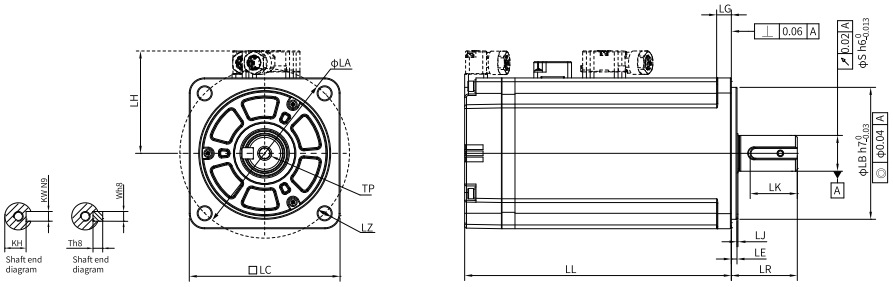
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)

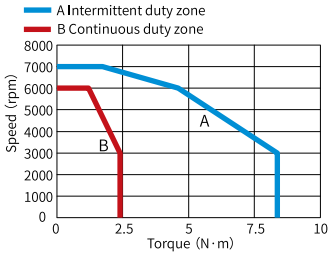


LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	107.3 (141.5)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.22 (2.88)

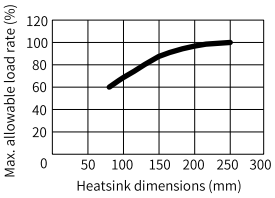
4.2.8 MS1H1-75B30CB-V33*R-INT

Motor specifications		
Frame size (mm)	80	
Inertia and capacity	Low inertia and small capacity	
Rated power (kW)	0.75	
Voltage (V)	220	
Rated torque (N·m)	2.39	
Maximum torque (N·m)	8.36	
Rated current (A)	4.4	
Maximum current (A)	16.9	
Rated speed (rpm)	3000	
Maximum speed (rpm)	7000	
Torque coefficient (N·m/A)	0.62	
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.68±10%
	Motor with brake	0.71±10%

Torque-Speed characteristics



Heatsink-based derating curve



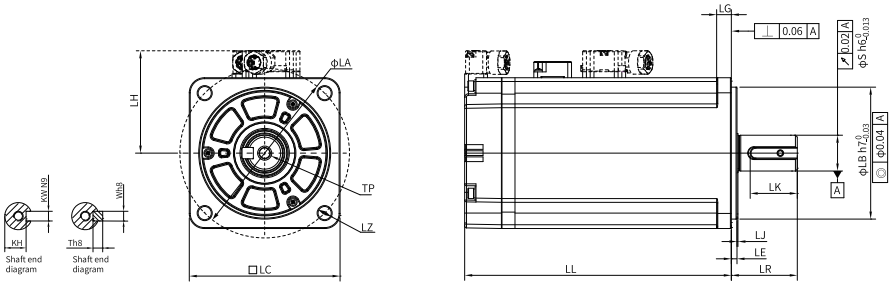
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

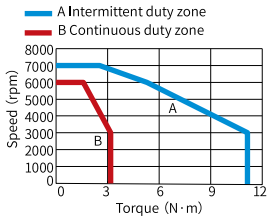
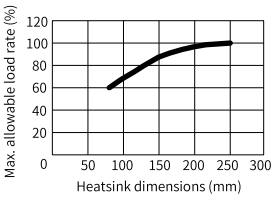
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	107.3 (141.5)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.22 (2.88)

4.2.9 MS1H1-10C30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	1.0		
Voltage (V)	220		
Rated torque (N·m)	3.18		
Maximum torque (N·m)	11.1		
Rated current (Arms)	6.2		Heatsink-based derating curve
Maximum current (Arms)	24		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N□m/Arms)	0.59		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.82±10%	
	Motor with brake	0.87±10%	

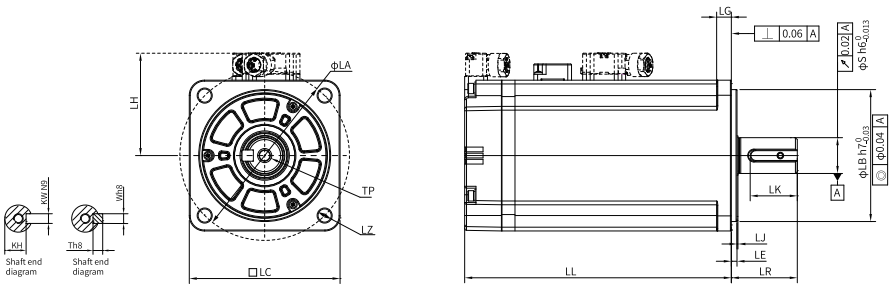
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

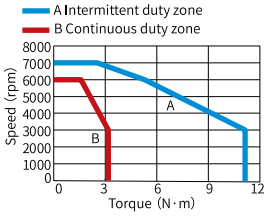
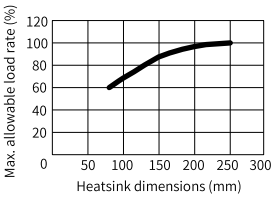
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	119.2 (153.4)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.61 (3.27)

4.2.10 MS1H1-10C30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Low inertia and small capacity		
Rated power (kW)	1.0		
Voltage (V)	220		
Rated torque (N·m)	3.18		
Maximum torque (N·m)	11.13		
Rated current (A)	6.2		Heatsink-based derating curve
Maximum current (A)	24		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.59		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.82±10%	
	Motor with brake	0.87±10%	

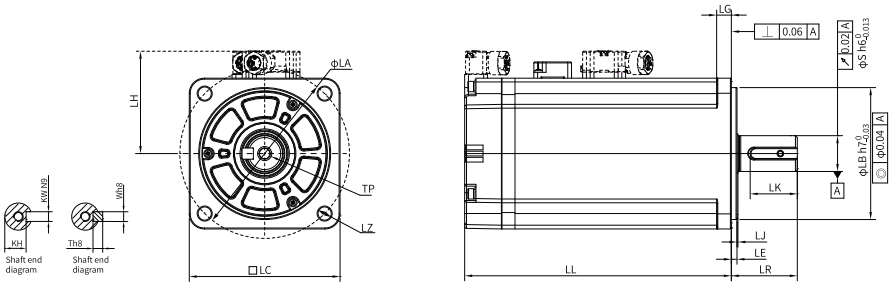
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

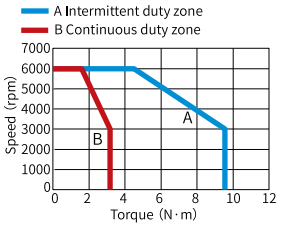
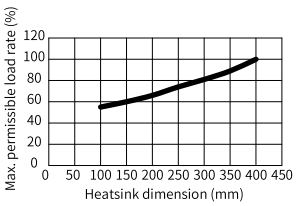
Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	119.2 (153.4)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.61 (3.27)

4.3 MS1H2 Series Motors with Low Inertia and Medium Capacity

4.3.1 MS1H2-10C30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	100		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	1.0		
Voltage (V)	220		
Rated torque (N·m)	3.18		
Maximum torque (N·m)	9.54		
Rated current (A)	6.4		Heatsink-based derating curve
Maximum current (A)	23		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.54		
Rotor moment of inertia (kg·cm^2)	Motor without brake	1.78±10%	
	Motor with brake	2.6±10%	

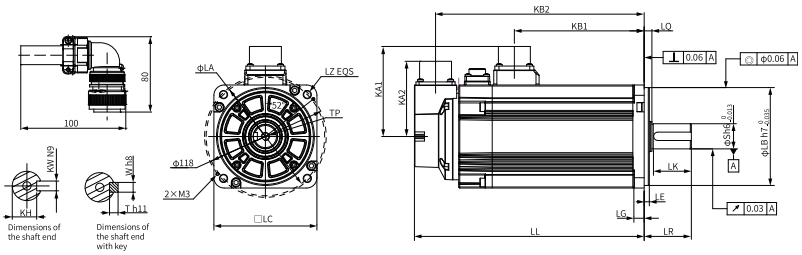
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

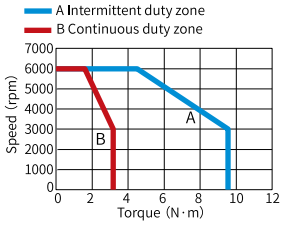


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	144 (172)	45±1	115	4 x ϕ7	88	75	73	123.5 (151.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	3.85 (4.9)

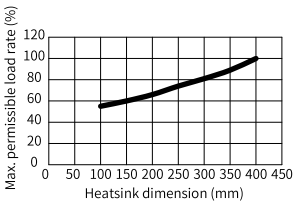
4.3.2 MS1H2-10C30CB-V33*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	1.0	
Voltage (V)	220	
Rated torque (N·m)	3.18	
Maximum torque (N·m)	9.54	
Rated current (A)	6.4	
Maximum current (A)	23	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	0.54	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	1.78±10%
	Motor with brake	2.6±10%

Torque-Speed characteristics



Heatsink-based derating curve



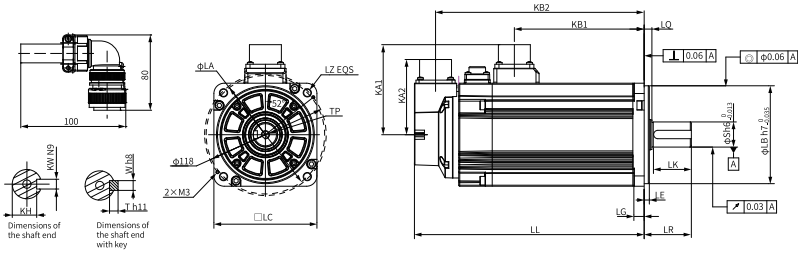
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

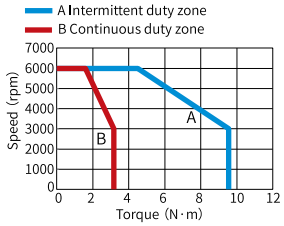


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	144 (172)	45±1	115	4 x ϕ7	88	75	73	123.5 (151.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	3.85 (4.9)

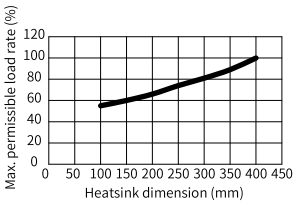
4.3.3 MS1H2-10C30CD-V63*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	1.0	
Voltage (V)	380	
Rated torque (N·m)	3.18	
Maximum torque (N·m)	9.54	
Rated current (A)	3.3	
Maximum current (A)	11	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.07	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	1.78±10%
	Motor with brake	2.6±10%

Torque-Speed characteristics



Heatsink-based derating curve



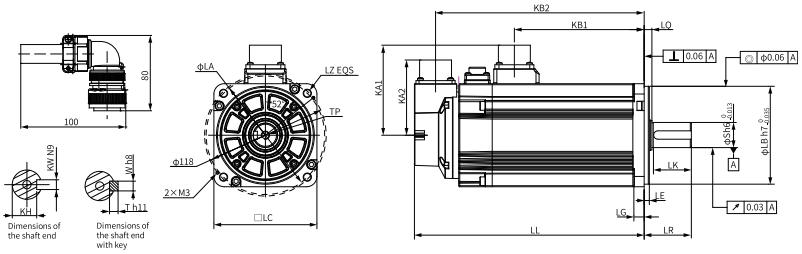
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

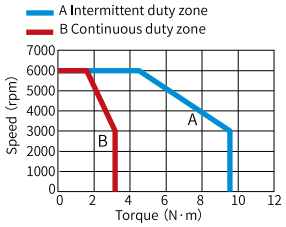


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	144 (172)	45±1	115	4 x ϕ7	88	75	73	123.5 (151.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	3.85 (4.9)

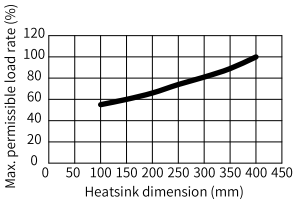
4.3.4 MS1H2-10C30CD-V33*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	1.0	
Voltage (V)	380	
Rated torque (N·m)	3.18	
Maximum torque (N·m)	9.54	
Rated current (A)	3.3	
Maximum current (A)	11	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.07	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	1.78±10%
	Motor with brake	2.6±10%

Torque-Speed characteristics



Heatsink-based derating curve



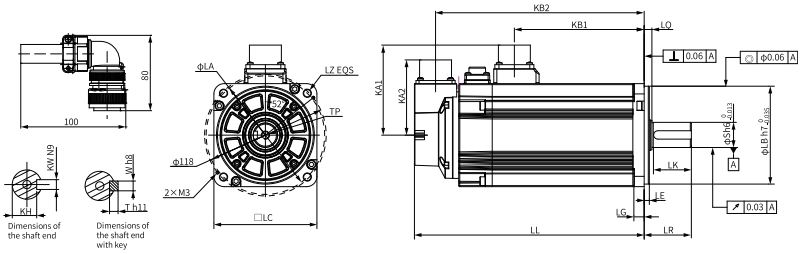
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

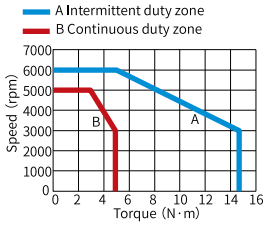


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	144 (172)	45±1	115	4 x ϕ7	88	75	73	123.5 (151.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	3.85 (4.9)

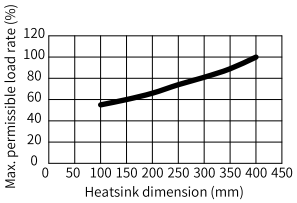
4.3.5 MS1H2-15C30CB-V63*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	1.5	
Voltage (V)	220	
Rated torque (N·m)	4.9	
Maximum torque (N·m)	14.7	
Rated current (A)	8.6	
Maximum current (A)	32	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	0.62	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	2.35±10%
	Motor with brake	3.17±10%

Torque-Speed characteristics



Heatsink-based derating curve



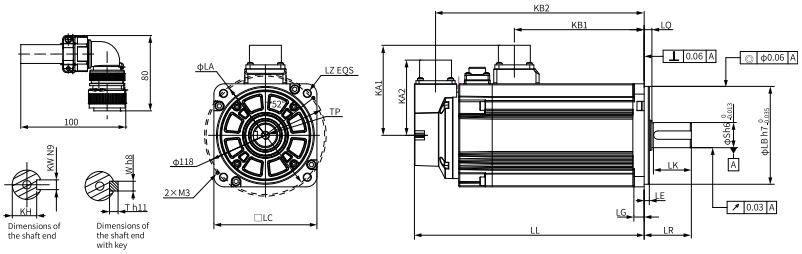
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

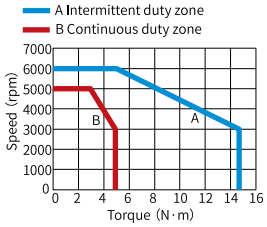


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	161 (189)	45±1	115	4 x ϕ7	88	92	73	140.5 (168.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	4.65 (5.75)

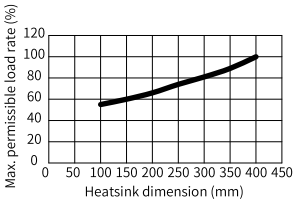
4.3.6 MS1H2-15C30CB-V33*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	1.5	
Voltage (V)	220	
Rated torque (N·m)	4.9	
Maximum torque (N·m)	14.7	
Rated current (A)	8.6	
Maximum current (A)	32	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	0.62	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	2.35±10%
	Motor with brake	3.17±10%

Torque-Speed characteristics



Heatsink-based derating curve



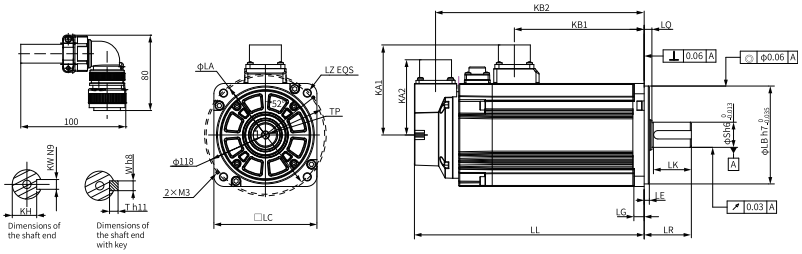
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

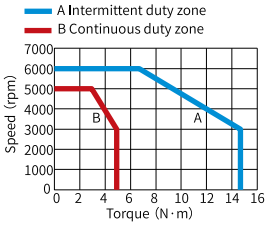


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	161 (189)	45±1	115	4 x ϕ7	88	92	73	140.5 (168.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	4.65 (5.75)

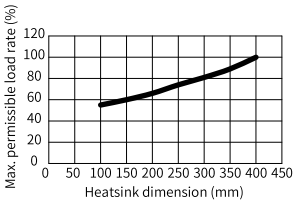
4.3.7 MS1H2-15C30CD-V63*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	1.5	
Voltage (V)	380	
Rated torque (N·m)	4.9	
Maximum torque (N·m)	14.7	
Rated current (A)	4.2	
Maximum current (A)	14	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.28	
Rotor moment of inertia (kg·cm²)	Motor without brake	2.35±10%
	Motor with brake	3.17±10%

Torque-Speed characteristics



Heatsink-based derating curve



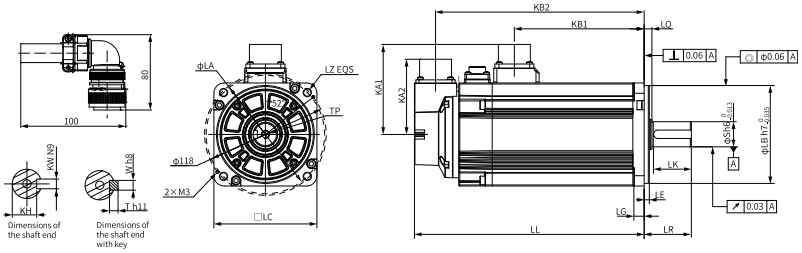
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

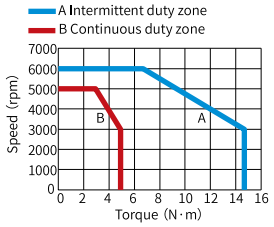


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	161 (189)	45±1	115	4 x ϕ7	88	92	73	140.5 (168.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	4.65 (5.75)

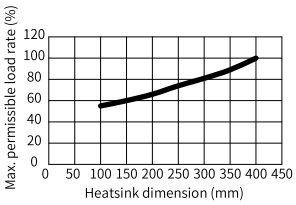
4.3.8 MS1H2-15C30CD-V33*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	1.5	
Voltage (V)	380	
Rated torque (N·m)	4.9	
Maximum torque (N·m)	14.7	
Rated current (A)	4.2	
Maximum current (A)	14	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.28	
Rotor moment of inertia (kg·cm²)	Motor without brake	2.35±10%
	Motor with brake	3.17±10%

Torque-Speed characteristics



Heatsink-based derating curve



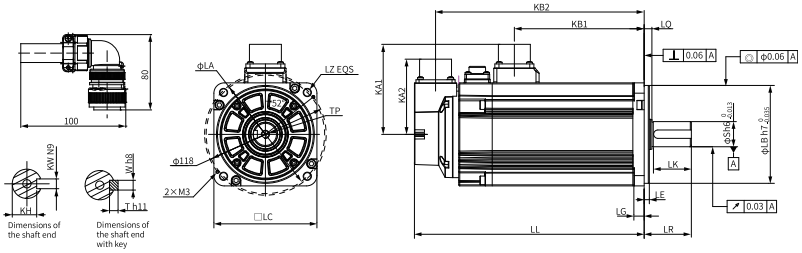
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

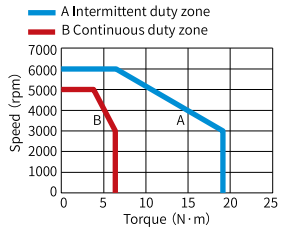
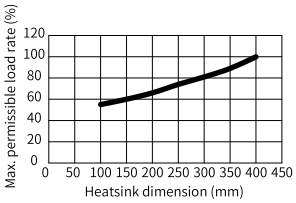
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	161 (189)	45±1	115	4 x ϕ7	88	92	73	140.5 (168.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	4.65 (5.75)

4.3.9 MS1H2-20C30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	100		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	2.0		
Voltage (V)	220		
Rated torque (N·m)	6.36		
Maximum torque (N·m)	19.1		
Rated current (A)	11.3		Heatsink-based derating curve
Maximum current (A)	42		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.60		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	2.92±10%	
	Motor with brake	3.74±10%	

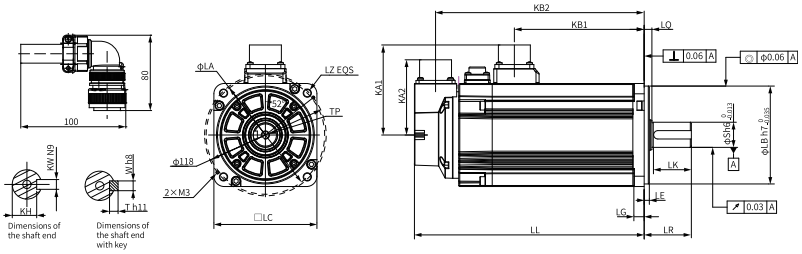
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

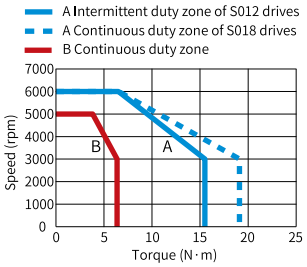


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	177 (205)	45±1	115	4 x ϕ7	88	108	73	156.5 (184.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	5.5 (6.55)

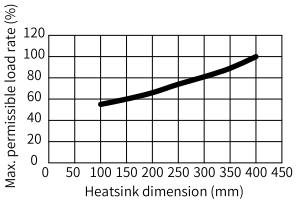
4.3.10 MS1H2-20C30CB-V33*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	2.0	
Voltage (V)	220	
Rated torque (N·m)	6.36	
Maximum torque (N·m)	19.1	
Rated current (A)	11.3	
Maximum current (A)	42	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	0.60	
Rotor moment of inertia (kg·cm^2)	Motor without brake	2.92±10%
	Motor with brake	3.74±10%

Torque-Speed characteristics



Heatsink-based derating curve



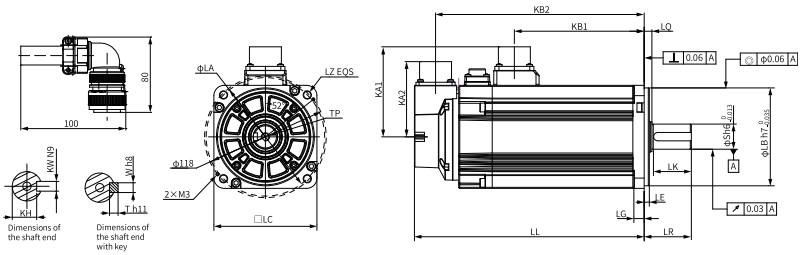
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

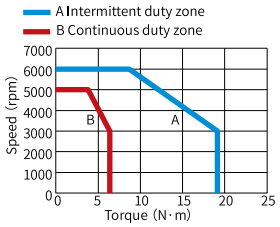


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	177 (205)	45±1	115	4 x ϕ7	88	108	73	156.5 (184.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	5.5 (6.55)

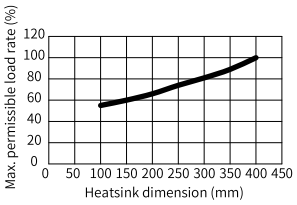
4.3.11 MS1H2-20C30CD-V63*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	2.0	
Voltage (V)	380	
Rated torque (N·m)	6.36	
Maximum torque (N·m)	19.1	
Rated current (A)	5.6	
Maximum current (A)	20	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.19	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	2.92±10%
	Motor with brake	3.74±10%

Torque-Speed characteristics



Heatsink-based derating curve



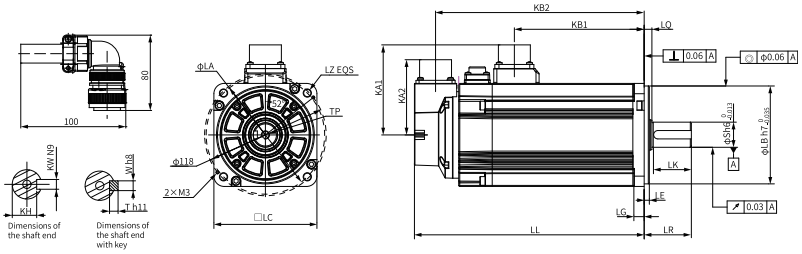
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

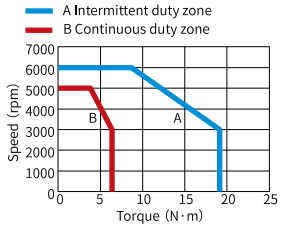
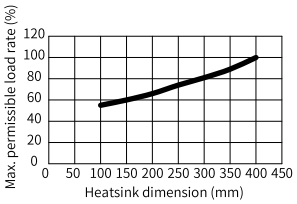
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	177 (205)	45±1	115	4 x ϕ7	88	108	73	156.5 (184.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	5.5 (6.55)

4.3.12 MS1H2-20C30CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	100		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	2.0		
Voltage (V)	380		
Rated torque (N·m)	6.36		
Maximum torque (N·m)	19.1		
Rated current (A)	5.6		Heatsink-based derating curve
Maximum current (A)	20		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	1.19		
Rotor moment of inertia ($kg \cdot cm^2$)	Motor without brake	2.92±10%	
	Motor with brake	3.74±10%	

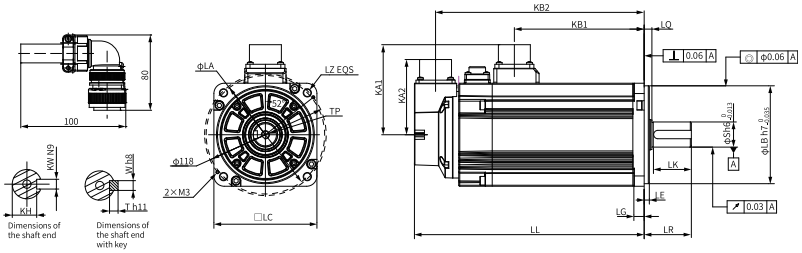
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

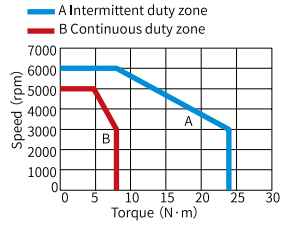
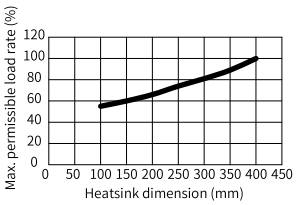
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	177 (205)	45±1	115	4 x ϕ7	88	108	73	156.5 (184.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	5.5 (6.55)

4.3.13 MS1H2-25C30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	100		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	2.5		
Voltage (V)	220		
Rated torque (N·m)	7.96		
Maximum torque (N·m)	23.9		
Rated current (A)	14.7		Heatsink-based derating curve
Maximum current (A)	53		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.60		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	3.49±10%	
	Motor with brake	4.3±10%	

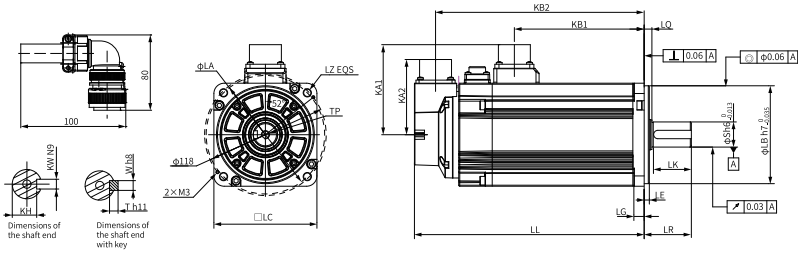
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

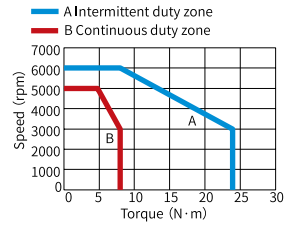
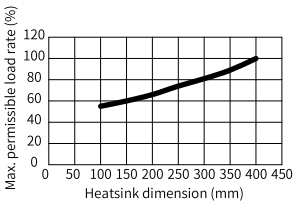
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	195 (223)	45±1	115	4 x ϕ7	88	126	73	174.5 (202.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	6.3 (7.35)

4.3.14 MS1H2-25C30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	100		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	2.5		
Voltage (V)	220		
Rated torque (N·m)	7.96		
Maximum torque (N·m)	23.9		
Rated current (A)	14.7		Heatsink-based derating curve
Maximum current (A)	53		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.60		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	3.49±10%	
	Motor with brake	4.3±10%	

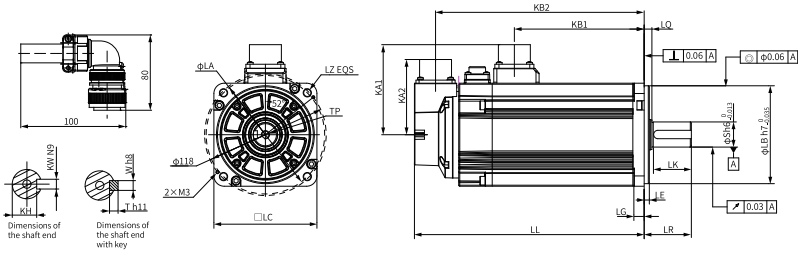
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

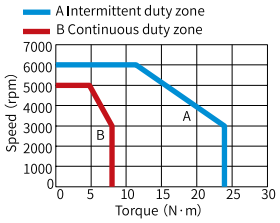


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	195 (223)	45±1	115	4 x ϕ7	88	126	73	174.5 (202.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	6.3 (7.35)

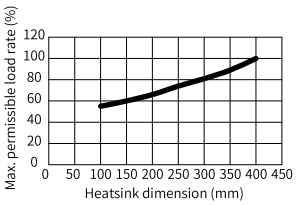
4.3.15 MS1H2-25C30CD-V63*R-INT

Motor specifications		
Frame size (mm)	100	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	2.5	
Voltage (V)	380	
Rated torque (N·m)	7.96	
Maximum torque (N·m)	23.9	
Rated current (A)	7.2	
Maximum current (A)	26	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.18	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	3.49±10%
	Motor with brake	4.3±10%

Torque-Speed characteristics



Heatsink-based derating curve



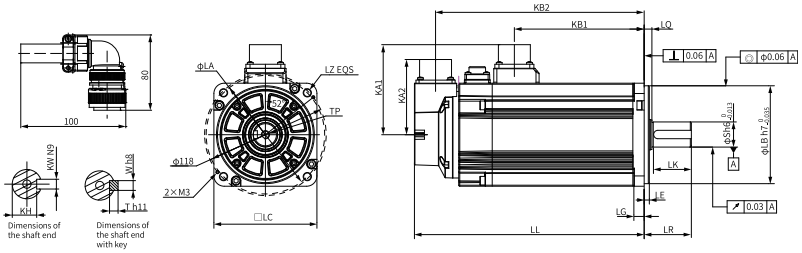
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

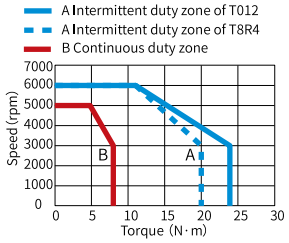
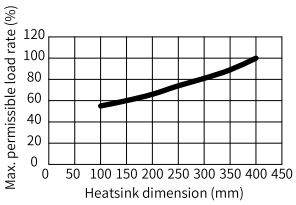
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	195 (223)	45±1	115	4 x ϕ7	88	126	73	174.5 (202.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	6.3 (7.35)

4.3.16 MS1H2-25C30CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	100		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	2.5		
Voltage (V)	380		
Rated torque (N·m)	7.96		
Maximum torque (N·m)	23.9		
Rated current (A)	7.2		Heatsink-based derating curve
Maximum current (A)	26		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	1.18		
Rotor moment of inertia (kg·cm^2)	Motor without brake	3.49±10%	
	Motor with brake	4.3±10%	

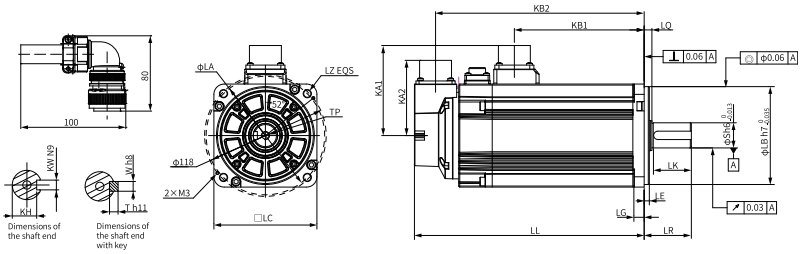
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
8	24	17.6	32.73	0.73	≤ 100	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
45	≤ 686	≤ 196

Product dimensions (mm)

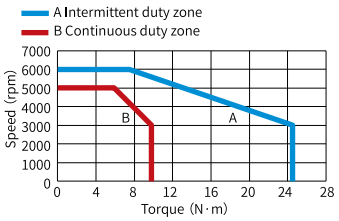


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
100	195 (223)	45±1	115	4 x ϕ7	88	126	73	174.5 (202.5)	10	5±0.3
LQ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
7.5±0.75	95		24	M8x16	$35^{0}_{-0.62}$	$20^{0}_{-0.2}$	8	8	7	6.3 (7.35)

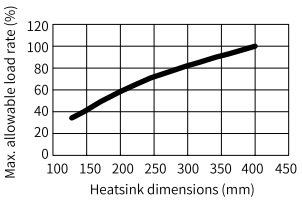
4.3.17 MS1H2-30C30CB-V63*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	3.0	
Voltage (V)	220	
Rated torque (N·m)	9.8	
Maximum torque (N·m)	24.5	
Rated current (A)	16.6	
Maximum current (A)	55	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	0.67	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	6.4±10%
	Motor with brake	9.38±10%

Torque-Speed characteristics



Heatsink-based derating curve



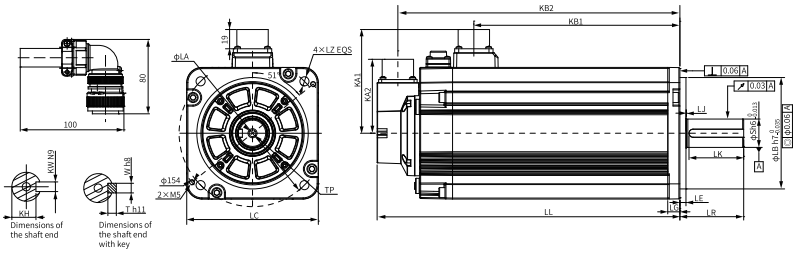
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)

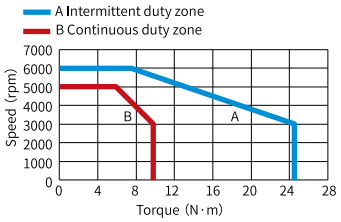


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	198 (223)	63±1	145	4 x ϕ9	102.4	127.5	73	177.5 (202.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	10.0 (11.9)

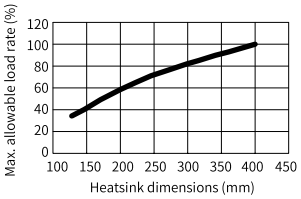
4.3.18 MS1H2-30C30CB-V33*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	3.0	
Voltage (V)	220	
Rated torque (N·m)	9.8	
Maximum torque (N·m)	24.5	
Rated current (A)	16.6	
Maximum current (A)	55	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	0.67	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	6.4±10%
	Motor with brake	9.38±10%

Torque-Speed characteristics



Heatsink-based derating curve



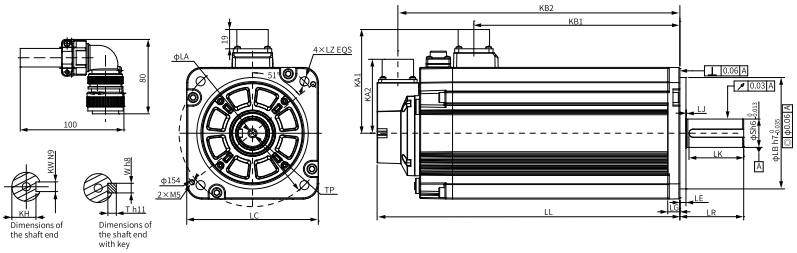
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)

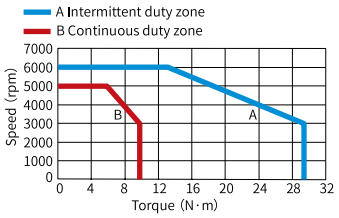


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	198 (223)	63±1	145	4 x ϕ9	102.4	127.5	73	177.5 (202.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	10.0 (11.9)

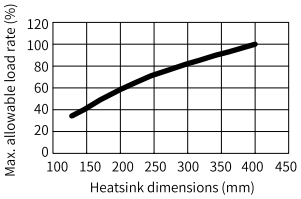
4.3.19 MS1H2-30C30CD-V63*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	3.0	
Voltage (V)	380	
Rated torque (N·m)	9.8	
Maximum torque (N·m)	29.4	
Rated current (A)	8.9	
Maximum current (A)	29	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.25	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	6.4±10%
	Motor with brake	9.38±10%

Torque-Speed characteristics



Heatsink-based derating curve



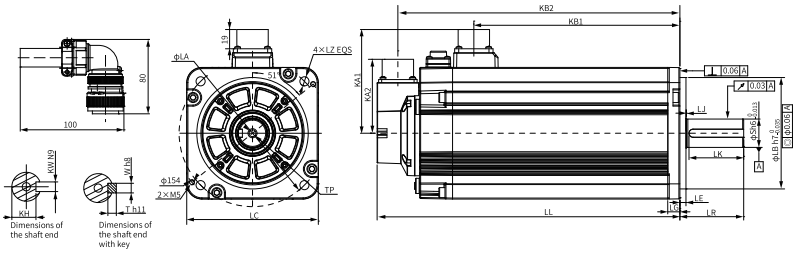
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)

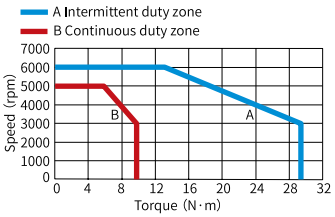


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	198 (223)	63±1	145	4 x ϕ9	102.4	127.5	73	177.5 (202.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	10.0 (11.9)

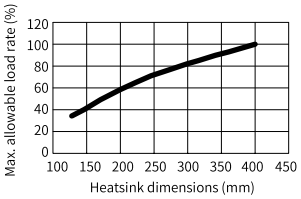
4.3.20 MS1H2-30C30CD-V33*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	3.0	
Voltage (V)	380	
Rated torque (N·m)	9.8	
Maximum torque (N·m)	29.4	
Rated current (A)	8.9	
Maximum current (A)	29	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.25	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	6.4±10%
	Motor with brake	9.38±10%

Torque-Speed characteristics



Heatsink-based derating curve



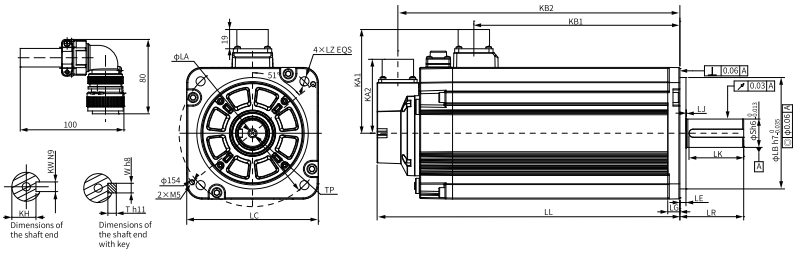
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

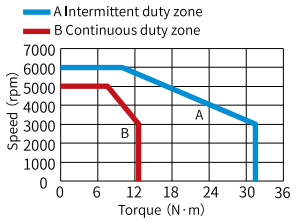
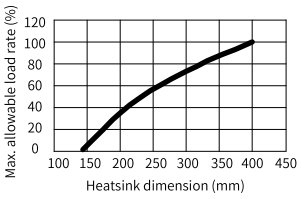
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	198 (223)	63±1	145	4 x ϕ9	102.4	127.5	73	177.5 (202.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	10.0 (11.9)

4.3.21 MS1H2-40C30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	4.0		
Voltage (V)	220		
Rated torque (N·m)	12.6		
Maximum torque (N·m)	31.5		
Rated current (A)	22		Heatsink-based derating curve
Maximum current (A)	67.5		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.65		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	9±10%	
	Motor with brake	11.98±10%	

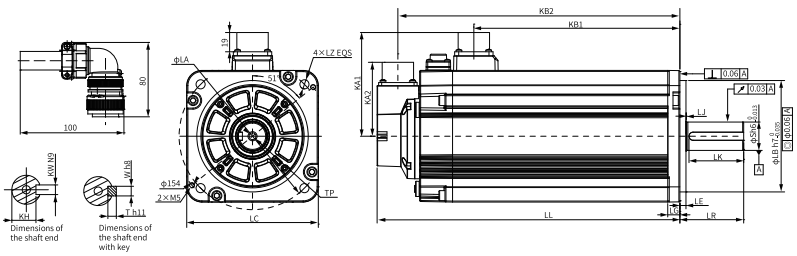
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

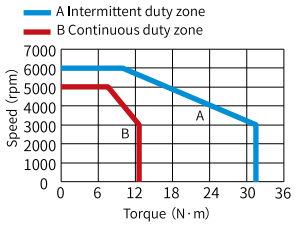
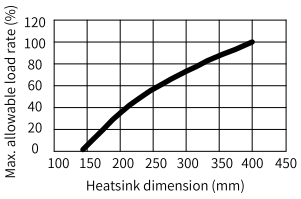
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	236 (261)	63±1	145	4 x ϕ9	102.4	165.5	73	215.5 (240.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	13.2 (15.1)

4.3.22 MS1H2-40C30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	4.0		
Voltage (V)	220		
Rated torque (N·m)	12.6		
Maximum torque (N·m)	31.5		
Rated current (A)	22		Heatsink-based derating curve
Maximum current (A)	67.5		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.65		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	9±10%	
	Motor with brake	11.98±10%	

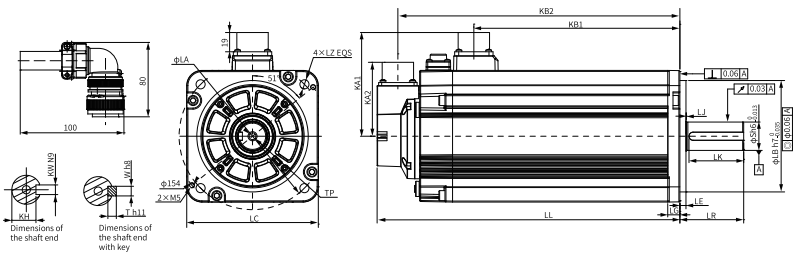
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)

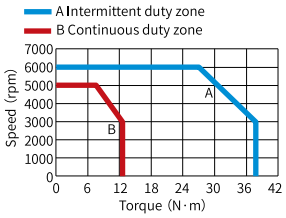


LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	236 (261)	63±1	145	4 x ϕ9	102.4	165.5	73	215.5 (240.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	13.2 (15.1)

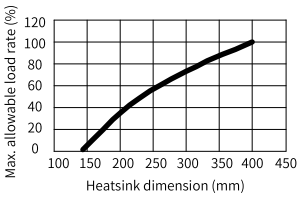
4.3.23 MS1H2-40C30CD-V63*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Low inertia and medium capacity	
Rated power (kW)	4.0	
Voltage (V)	380	
Rated torque (N·m)	12.6	
Maximum torque (N·m)	37.8	
Rated current (A)	13.5	
Maximum current (A)	42.5	
Rated speed (rpm)	3000	
Maximum speed (rpm)	6000	
Torque coefficient (N·m/A)	1.06	
Rotor moment of inertia (kg·cm^2)	Motor without brake	9±10%
	Motor with brake	11.98±10%

Torque-Speed characteristics



Heatsink-based derating curve



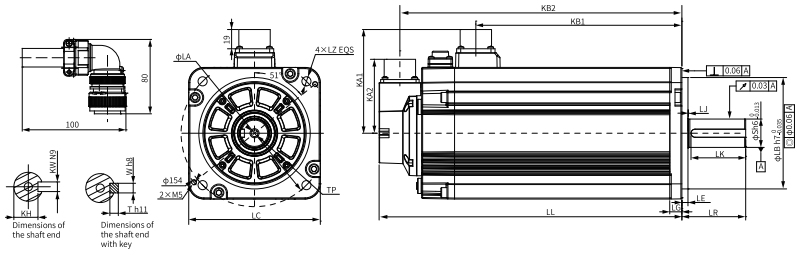
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

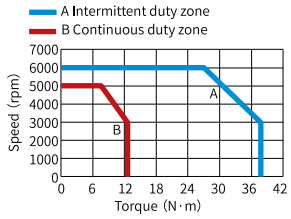
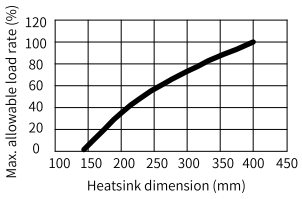
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	236 (261)	63±1	145	4 x ϕ9	102.4	165.5	73	215.5 (240.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	13.2 (15.1)

4.3.24 MS1H2-40C30CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	4.0		
Voltage (V)	380		
Rated torque (N·m)	12.6		
Maximum torque (N·m)	37.8		
Rated current (A)	13.5		Heatsink-based derating curve
Maximum current (A)	42.5		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	1.06		
Rotor moment of inertia (kg·cm^2)	Motor without brake	9±10%	
	Motor with brake	11.98±10%	

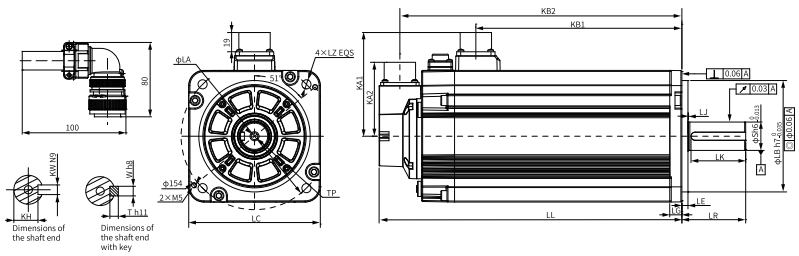
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

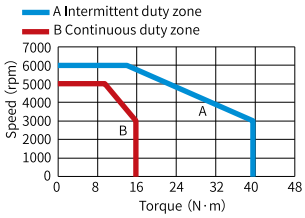
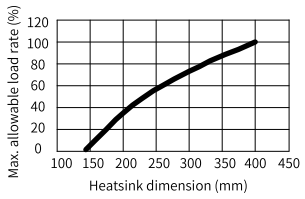
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	236 (261)	63±1	145	4 x ϕ9	102.4	165.5	73	215.5 (240.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	13.2 (15.1)

4.3.25 MS1H2-50C30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	5.0		
Voltage (V)	220		
Rated torque (N·m)	15.8		
Maximum torque (N·m)	39.5		
Rated current (A)	22		Heatsink-based derating curve
Maximum current (A)	67.5		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.81		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	11.6±10%	
	Motor with brake	14.58±10%	

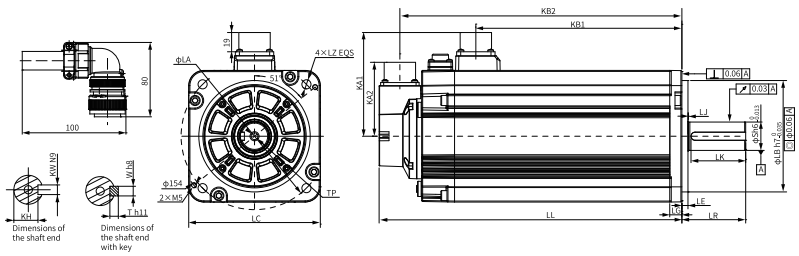
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

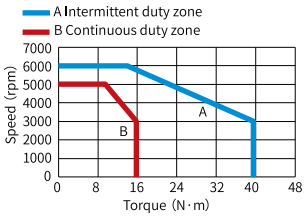
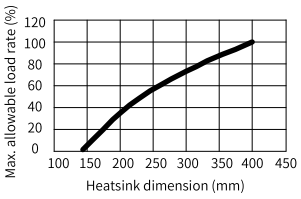
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	274 (299)	63±1	145	4 x ϕ9	102.4	203.5	73	253.5 (278.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	16.35 (18.25)

4.3.26 MS1H2-50C30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	5.0		
Voltage (V)	220		
Rated torque (N·m)	15.8		
Maximum torque (N·m)	39.5		
Rated current (A)	22		Heatsink-based derating curve
Maximum current (A)	67.5		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	0.81		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	11.6±10%	
	Motor with brake	14.58±10%	

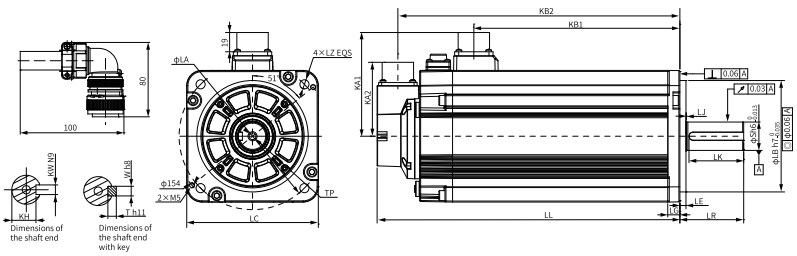
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

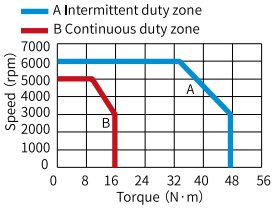
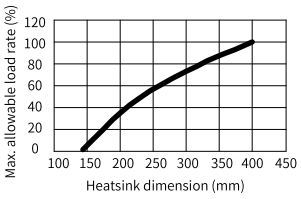
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	274 (299)	63±1	145	4 x ϕ9	102.4	203.5	73	253.5 (278.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	16.35 (18.25)

4.3.27 MS1H2-50C30CD-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	5.0		
Voltage (V)	380		
Rated torque (N·m)	15.8		
Maximum torque (N·m)	47.4		
Rated current (A)	17		Heatsink-based derating curve
Maximum current (A)	52.5		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	1.04		
Rotor moment of inertia (kg·cm^2)	Motor without brake	11.6±10%	
	Motor with brake	14.58±10%	

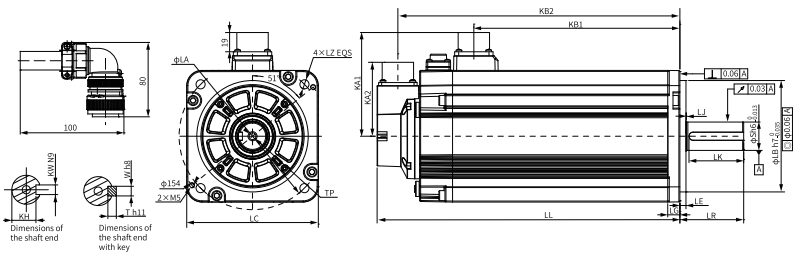
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

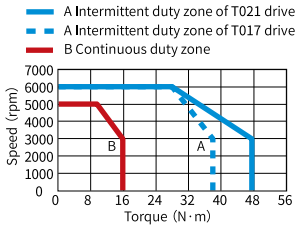
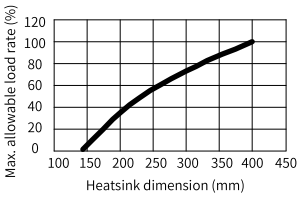
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	274 (299)	63±1	145	4 x ϕ9	102.4	203.5	73	253.5 (278.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	16.35 (18.25)

4.3.28 MS1H2-50C30CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Low inertia and medium capacity		
Rated power (kW)	5.0		
Voltage (V)	380		
Rated torque (N·m)	15.8		
Maximum torque (N·m)	47.4		
Rated current (A)	17		Heatsink-based derating curve
Maximum current (A)	52.5		
Rated speed (rpm)	3000		
Maximum speed (rpm)	6000		
Torque coefficient (N·m/A)	1.04		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	11.6±10%	
	Motor with brake	14.58±10%	

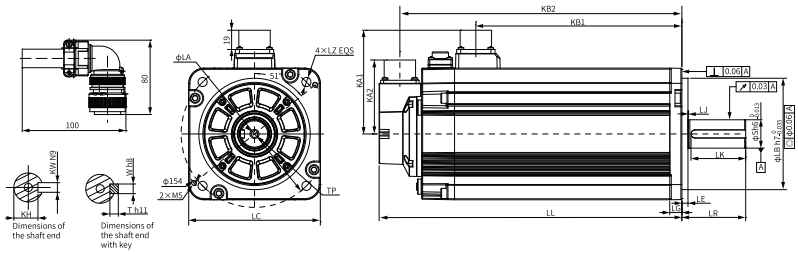
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Exciting current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
63	≤ 1176	≤ 392

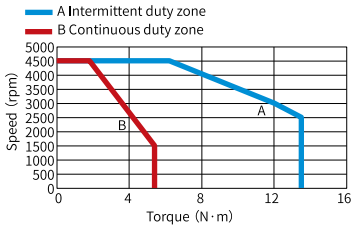
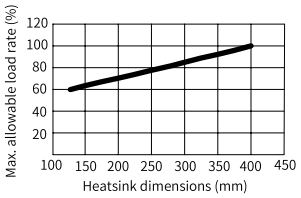
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	274 (299)	63±1	145	4 x ϕ9	102.4	203.5	73	253.5 (278.5)	10.5	6±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		28	M8x20	$53^{0}_{-0.62}$	$24^{0}_{-0.2}$	8	8	7	16.35 (18.25)

4.4 MS1H3 Series Motors with Medium Inertia and Medium Capacity

4.4.1 MS1H3-85B15CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	0.85		
Voltage (V)	220		
Rated torque (N·m)	5.39		
Maximum torque (N·m)	13.5		
Rated current (A)	6.6		Heatsink-based derating curve
Maximum current (A)	17.2		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	0.93		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	13.56±10%	
	Motor with brake	15.8±10%	

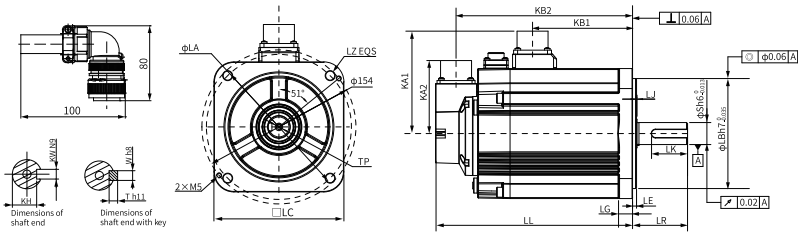
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

Product dimensions (mm)



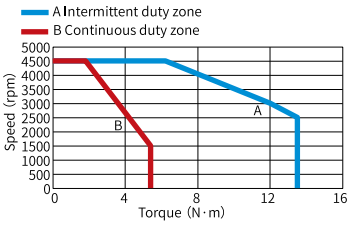
LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	142 (167)	55±1	145	4 x ϕ9	103	70	73	121.5 (146.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	5.8 (7.7)

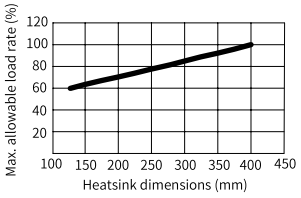
4.4.2 MS1H3-85B15CB-V33*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Medium inertia and medium capacity	
Rated power (kW)	0.85	
Voltage (V)	220	
Rated torque (N·m)	5.39	
Maximum torque (N·m)	13.5	
Rated current (A)	6.6	
Maximum current (A)	17.2	
Rated speed (rpm)	1500	
Maximum speed (rpm)	4500	
Torque coefficient (N·m/A)	0.93	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	13.56±10%
	Motor with brake	15.8±10%

Torque-Speed characteristics



Heatsink-based derating curve



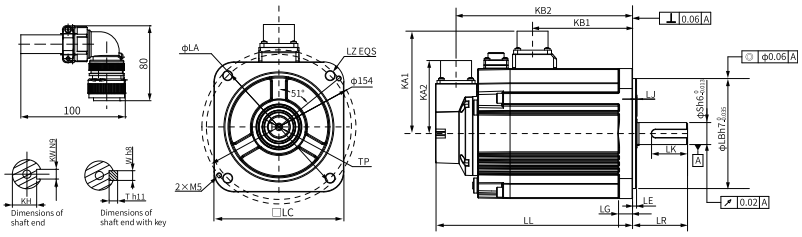
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

Product dimensions (mm)



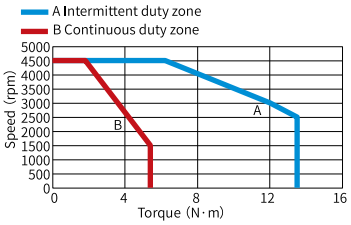
LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	142 (167)	55±1	145	4 x ϕ9	103	70	73	121.5 (146.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	5.8 (7.7)

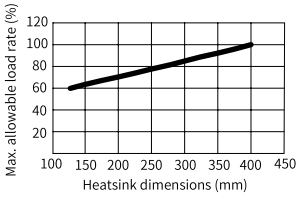
4.4.3 MS1H3-85B15CD-V63*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Medium inertia and medium capacity	
Rated power (kW)	0.85	
Voltage (V)	380	
Rated torque (N·m)	5.39	
Maximum torque (N·m)	13.5	
Rated current (A)	3.5	
Maximum current (A)	8.5	
Rated speed (rpm)	1500	
Maximum speed (rpm)	4500	
Torque coefficient (N·m/A)	1.84	
Rotor moment of inertia (kg·cm^2)	Motor without brake	13.56±10%
	Motor with brake	15.8±10%

Torque-Speed characteristics



Heatsink-based derating curve



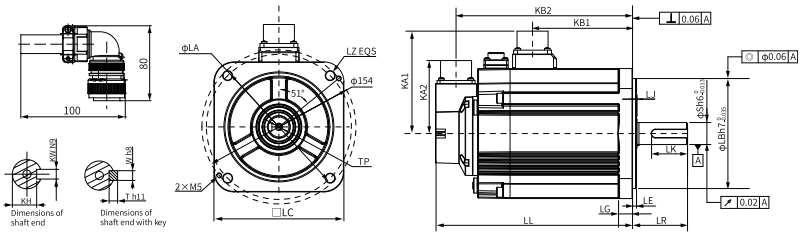
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

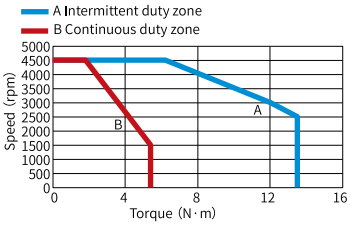
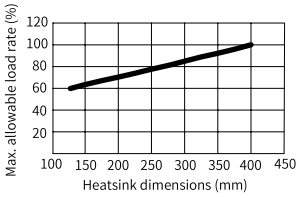
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	142 (167)	55±1	145	4 x ϕ9	103	70	73	121.5 (146.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	5.8 (7.7)

4.4.4 MS1H3-85B15CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	0.85		
Voltage (V)	380		
Rated torque (N·m)	5.39		
Maximum torque (N·m)	13.5		
Rated current (A)	3.5		Heatsink-based derating curve
Maximum current (A)	8.5		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.84		
Rotor moment of inertia (kg·cm^2)	Motor without brake	13.56±10%	
	Motor with brake	15.8±10%	

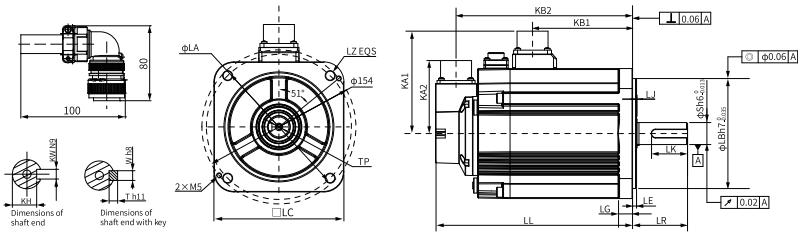
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

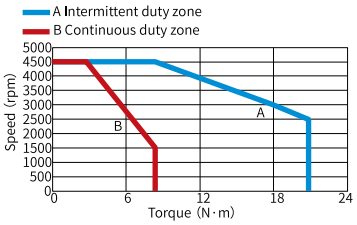
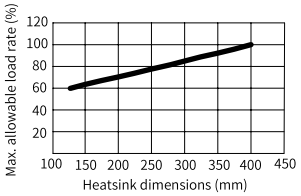
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	142 (167)	55±1	145	4 x ϕ9	103	70	73	121.5 (146.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	5.8 (7.7)

4.4.5 MS1H3-13C15CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	1.3		
Voltage (V)	220		
Rated torque (N·m)	8.34		
Maximum torque (N·m)	20.85		
Rated current (A)	10.5		Heatsink-based derating curve
Maximum current (A)	27.3		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	0.89		
Rotor moment of inertia (kg·cm^2)	Motor without brake	19.25±10%	
	Motor with brake	21.5±10%	

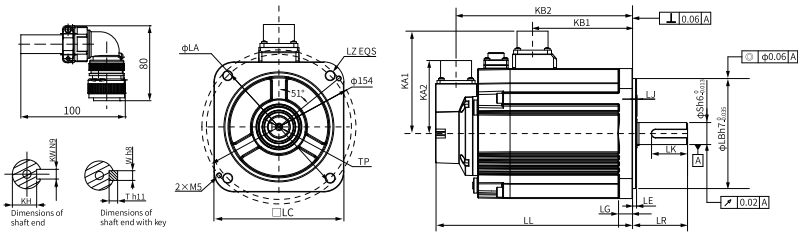
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

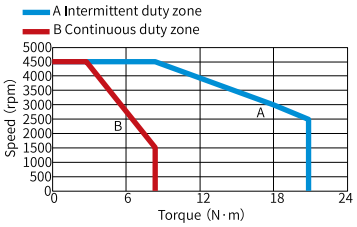
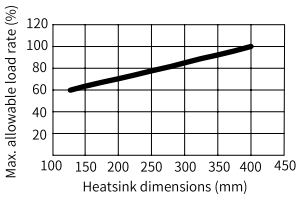
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	157 (182)	55±1	145	4 x ϕ9	103	85	73	136.5 (161.5)	14	4
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110		22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	7.1 (8.9)

4.4.6 MS1H3-13C15CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	1.3		
Voltage (V)	220		
Rated torque (N·m)	8.34		
Maximum torque (N·m)	20.85		
Rated current (A)	10.5		Heatsink-based derating curve
Maximum current (A)	27.3		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	0.89		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	19.25±10%	
	Motor with brake	21.5±10%	

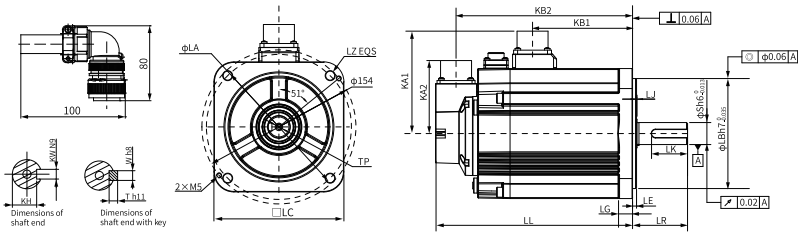
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

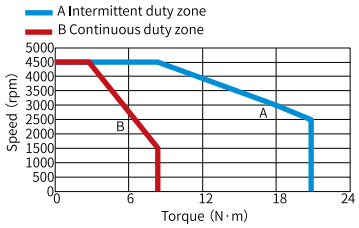
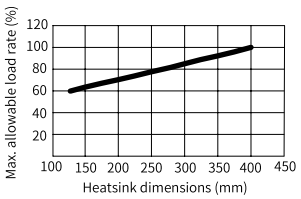
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	157 (182)	55±1	145	4 x ϕ9	103	85	73	136.5 (161.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	7.1 (8.9)

4.4.7 MS1H3-13C15CD-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	1.3		
Voltage (V)	380		
Rated torque (N·m)	8.34		
Maximum torque (N·m)	20.85		
Rated current (A)	5.1		Heatsink-based derating curve
Maximum current (A)	12.6		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.85		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	19.25±10%	
	Motor with brake	21.5±10%	

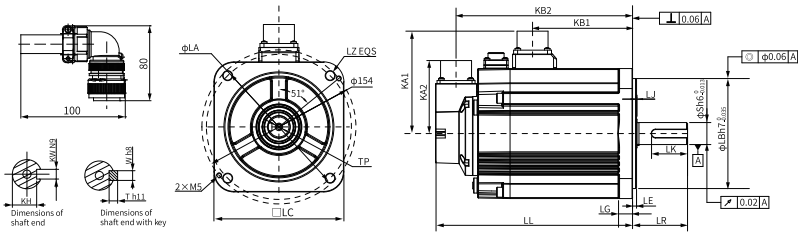
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

Product dimensions (mm)



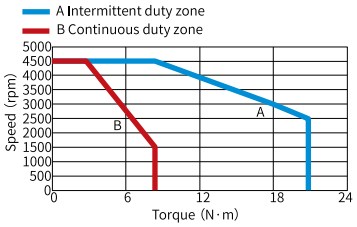
LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	157 (182)	55±1	145	4 x ϕ9	103	85	73	136.5 (161.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	7.1 (8.9)

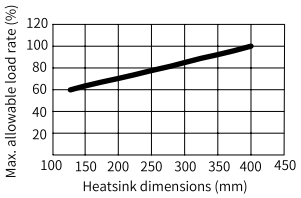
4.4.8 MS1H3-13C15CD-V33*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Medium inertia and medium capacity	
Rated power (kW)	1.3	
Voltage (V)	380	
Rated torque (N·m)	8.34	
Maximum torque (N·m)	20.85	
Rated current (A)	5.1	
Maximum current (A)	12.6	
Rated speed (rpm)	1500	
Maximum speed (rpm)	4500	
Torque coefficient (N·m/A)	1.85	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	19.25±10%
	Motor with brake	21.5±10%

Torque-Speed characteristics



Heatsink-based derating curve



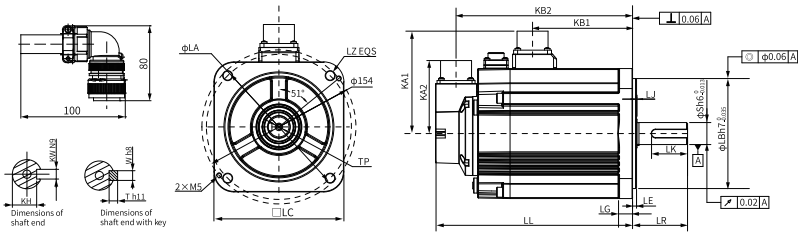
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

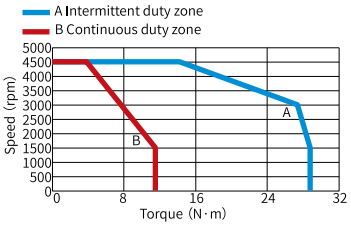
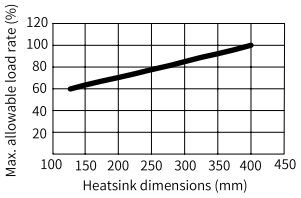
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	157 (182)	55±1	145	4 x ϕ9	103	85	73	136.5 (161.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	7.1 (8.9)

4.4.9 MS1H3-18C15CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	1.8		
Voltage (V)	220		
Rated torque (N·m)	11.5		
Maximum torque (N·m)	28.75		
Rated current (A)	11.9		Heatsink-based derating curve
Maximum current (A)	32.2		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.09		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	24.9±10%	
	Motor with brake	27.2±10%	

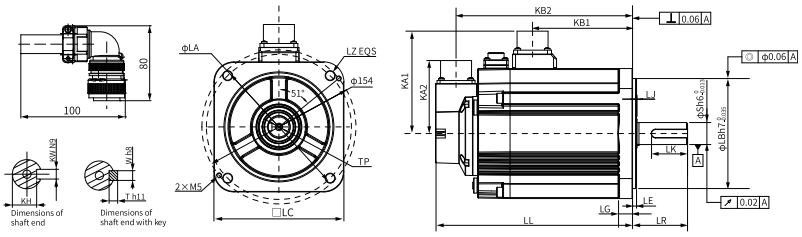
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

Product dimensions (mm)



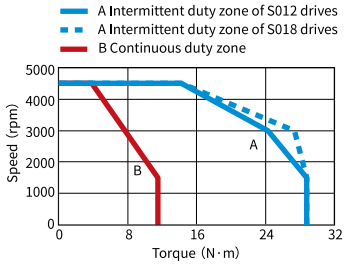
LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	172 (197)	55±1	145	4 x ϕ9	103	100	73	151.5 (176.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	8.5 (10.3)

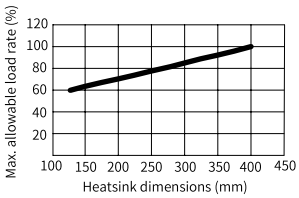
4.4.10 MS1H3-18C15CB-V33*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Medium inertia and medium capacity	
Rated power (kW)	1.8	
Voltage (V)	220	
Rated torque (N·m)	11.5	
Maximum torque (N·m)	28.75	
Rated current (A)	11.9	
Maximum current (A)	32.2	
Rated speed (rpm)	1500	
Maximum speed (rpm)	4500	
Torque coefficient (N·m/A)	1.09	
Rotor moment of inertia (kg·cm^2)	Motor without brake	24.9±10%
	Motor with brake	27.2±10%

Torque-Speed characteristics



Heatsink-based derating curve



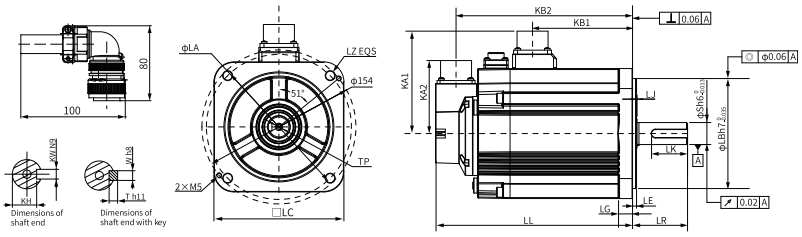
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

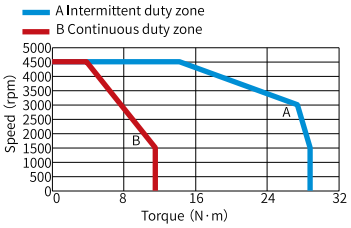
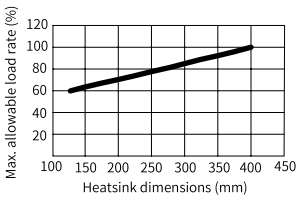
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	172 (197)	55±1	145	4 x ϕ9	103	100	73	151.5 (176.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	8.5 (10.3)

4.4.11 MS1H3-18C15CD-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	130		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	1.8		
Voltage (V)	380		
Rated torque (N·m)	11.5		
Maximum torque (N·m)	28.75		
Rated current (A)	6.75		Heatsink-based derating curve
Maximum current (A)	17.7		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.87		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	24.9±10%	
	Motor with brake	27.2±10%	

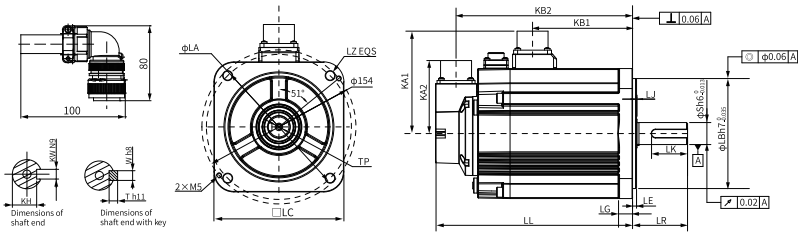
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

Product dimensions (mm)



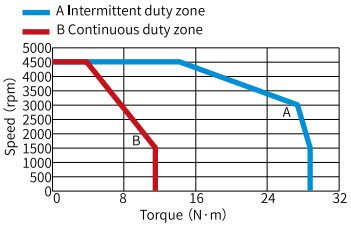
LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	172 (197)	55±1	145	4 x ϕ9	103	100	73	151.5 (176.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	8.5 (10.3)

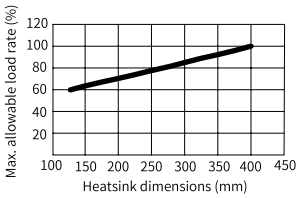
4.4.12 MS1H3-18C15CD-V33*R-INT

Motor specifications		
Frame size (mm)	130	
Inertia and capacity	Medium inertia and medium capacity	
Rated power (kW)	1.8	
Voltage (V)	380	
Rated torque (N·m)	11.5	
Maximum torque (N·m)	28.75	
Rated current (A)	6.75	
Maximum current (A)	17.7	
Rated speed (rpm)	1500	
Maximum speed (rpm)	4500	
Torque coefficient (N·m/A)	1.87	
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	24.9±10%
	Motor with brake	27.2±10%

Torque-Speed characteristics



Heatsink-based derating curve



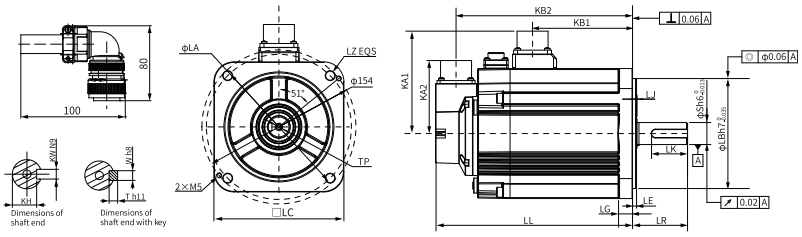
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
16	24	24	24	1	≤ 120	≤ 60	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
55	≤ 686	≤ 196

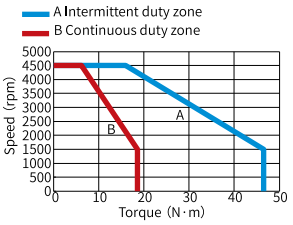
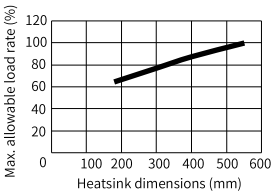
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
130	172 (197)	55±1	145	4 x φ9	103	100	73	151.5 (176.5)	14	4

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.5±0.75	110	22	M6x20	$35^{0}_{-0.62}$	$18^{0}_{-0.2}$	8	8	7	8.5 (10.3)

4.4.13 MS1H3-29C15CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	2.9		
Voltage (V)	220		
Rated torque (N·m)	18.6		
Maximum torque (N·m)	46.5		
Rated current (A)	18		Heatsink-based derating curve
Maximum current (A)	52.5		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.16		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	44.7±10%	
	Motor with brake	52.35±10%	

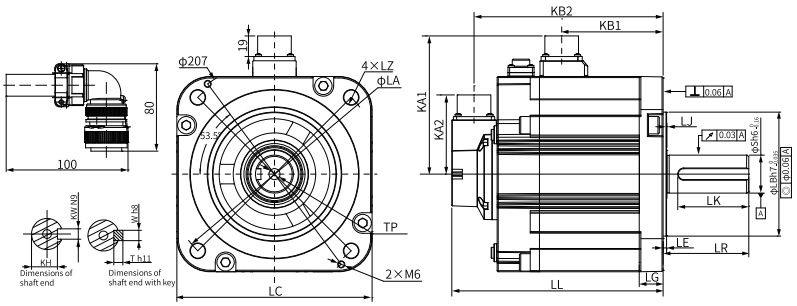
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

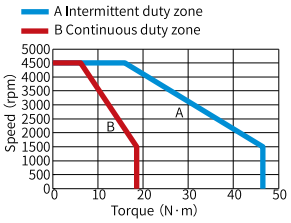
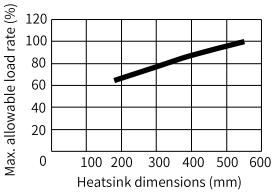
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	161 (194.8)	79±1	200	4 x ϕ13.5	127.4	93.5	73	140.5 (174.3)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	13.8 (17.9)

4.4.14 MS1H3-29C15CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	2.9		
Voltage (V)	220		
Rated torque (N·m)	18.6		
Maximum torque (N·m)	46.5		
Rated current (A)	18		Heatsink-based derating curve
Maximum current (A)	52.5		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.16		
Rotor moment of inertia (kg·cm^2)	Motor without brake	44.7±10%	
	Motor with brake	52.35±10%	

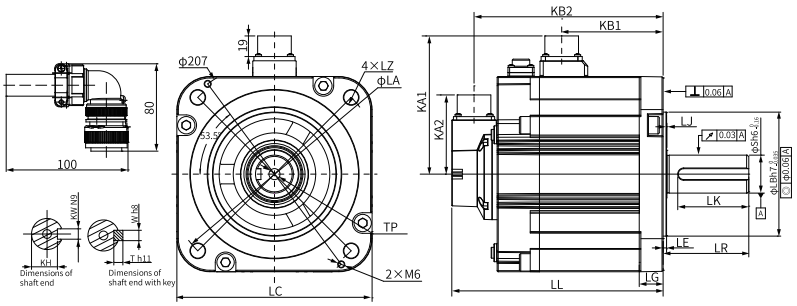
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

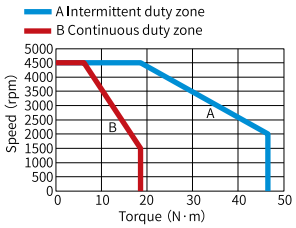
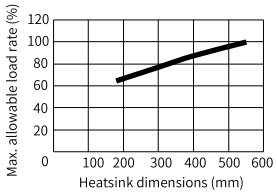
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	161 (194.8)	79±1	200	4 x ϕ13.5	127.4	93.5	73	140.5 (174.3)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	13.8 (17.9)

4.4.15 MS1H3-29C15CD-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated output (kW)	2.9		
Voltage (V)	380		
Rated torque (N·m)	18.6		
Maximum torque (N·m)	46.5		
Rated current (A)	10.5		Heatsink-based derating curve
Maximum current (A)	29.75		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.94		
Rotor moment of inertia (kg·cm^2)	Motor without brake	44.7±10%	
	Motor with brake	52.35±10%	

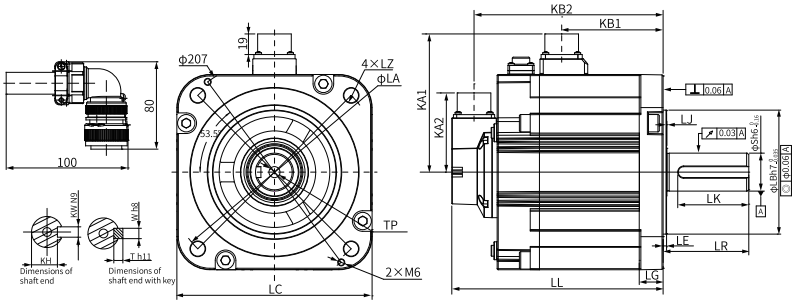
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

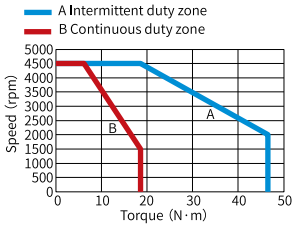
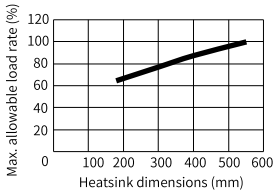
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	161 (194.8)	79±1	200	4 x ϕ13.5	127.4	93.5	73	140.5 (174.3)	20.5	3.2±0.3

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3	35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	13.8 (17.9)

4.4.16 MS1H3-29C15CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	2.9		
Voltage (V)	380		
Rated torque (N·m)	18.6		
Maximum torque (N·m)	46.5		
Rated current (A)	10.5		Heatsink-based derating curve
Maximum current (A)	29.75		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.94		
Rotor moment of inertia (kg·cm^2)	Motor without brake	44.7±10%	
	Motor with brake	52.35±10%	

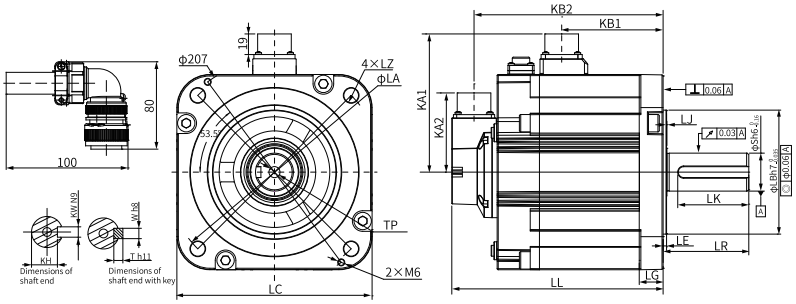
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

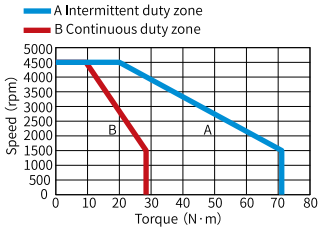
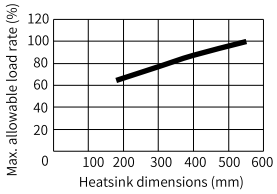
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	161 (194.8)	79±1	200	4 x ϕ13.5	127.4	93.5	73	140.5 (174.3)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	13.8 (17.9)

4.4.17 MS1H3-44C15CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	4.4		
Voltage (V)	220		
Rated torque (N·m)	28.4		
Maximum torque (N·m)	71.1		
Rated current (A)	25.5		Heatsink-based derating curve
Maximum current (A)	67		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.25		
Rotor moment of inertia (kg·cm^2)	Motor without brake	64.9±10%	
	Motor with brake	72.55±10%	

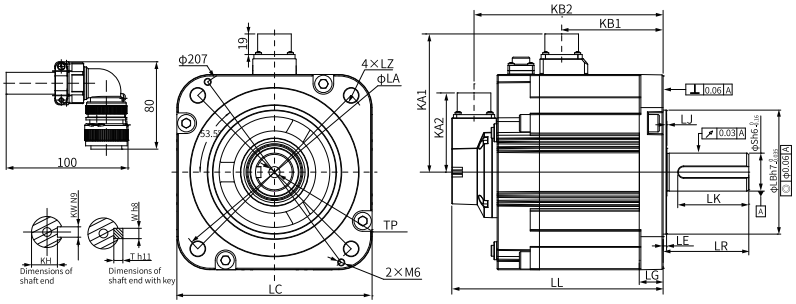
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

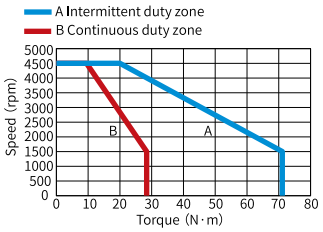
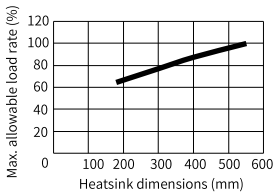
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	184.5 (218.3)	79±1	200	4 x ϕ13.5	127.4	117	73	164 (197.8)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	17.4 (21.9)

4.4.18 MS1H3-44C15CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	4.4		
Voltage (V)	220		
Rated torque (N·m)	28.4		
Maximum torque (N·m)	71.1		
Rated current (A)	25.5		Heatsink-based derating curve
Maximum current (A)	67		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.25		
Rotor moment of inertia (kg·cm^2)	Motor without brake	64.9±10%	
	Motor with brake	72.55±10%	

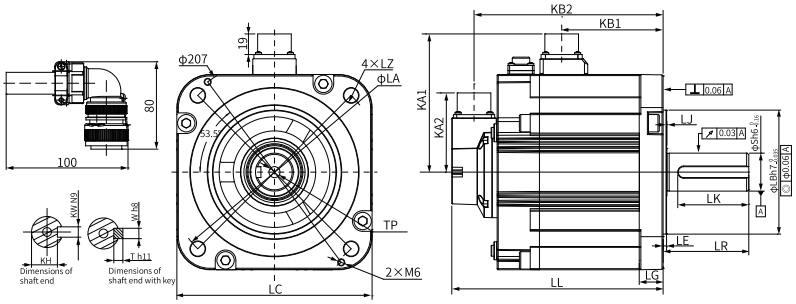
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

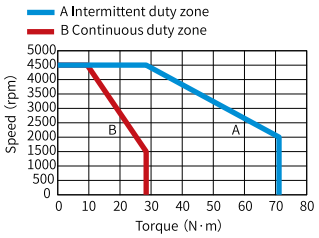
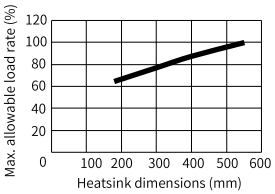
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	184.5 (218.3)	79±1	200	4 x ϕ13.5	127.4	117	73	164 (197.8)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	17.4 (21.9)

4.4.19 MS1H3-44C15CD-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	4.4		
Voltage (V)	380		
Rated torque (N·m)	28.4		
Maximum torque (N·m)	71.1		
Rated current (A)	16		Heatsink-based derating curve
Maximum current (A)	42		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.96		
Rotor moment of inertia (kg·cm^2)	Motor without brake	64.9±10%	
	Motor with brake	72.55±10%	

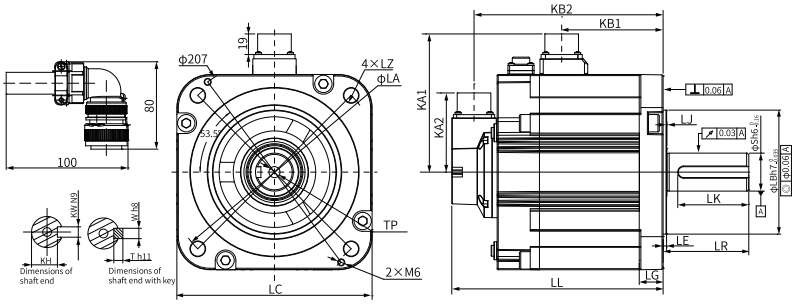
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

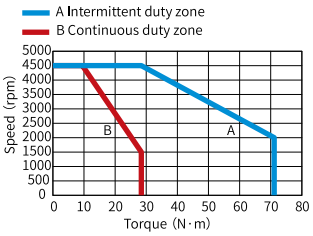
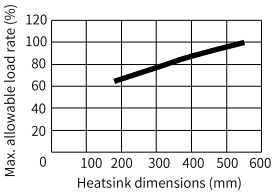
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	184.5 (218.3)	79±1	200	4 x ϕ13.5	127.4	117	73	164 (197.8)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	17.4 (21.6)

4.4.20 MS1H3-44C15CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	4.4		
Voltage (V)	380		
Rated torque (N·m)	28.4		
Maximum torque (N·m)	71.1		
Rated current (A)	16		Heatsink-based derating curve
Maximum current (A)	42		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.96		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	64.9±10%	
	Motor with brake	72.55±10%	

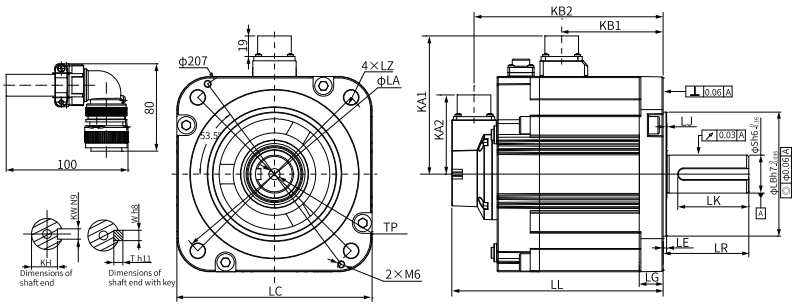
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

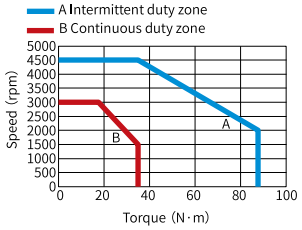
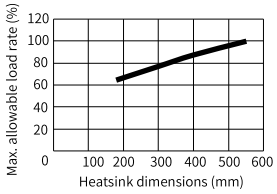
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
79	≤ 1470	≤ 490

Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	184.5 (218.3)	79±1	200	4 x ϕ13.5	127.4	117	73	164 (197.8)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		35	M12x25	$64^{0}_{-0.74}$	$30^{0}_{-0.2}$	10	10	8	17.4 (21.6)

4.4.21 MS1H3-55C15CD-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated output (kW)	5.5		
Voltage (V)	380		
Rated torque (N·m)	35		
Maximum torque (N·m)	87.6		
Rated current (A)	20.7		Heatsink-based derating curve
Maximum current (A)	52		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.92		
Rotor moment of inertia (kg·cm^2)	Motor without brake	86.9±10%	
	Motor with brake	94.55±10%	

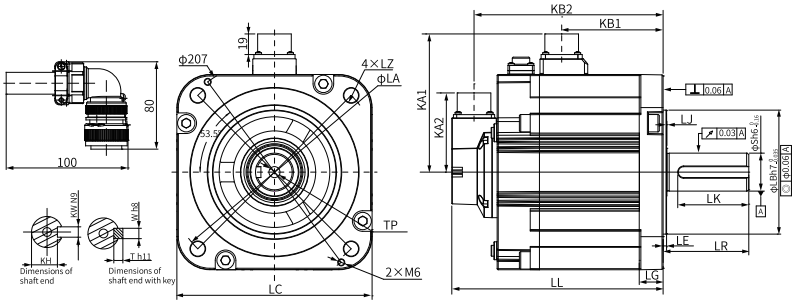
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
113	≤ 1764	≤ 588

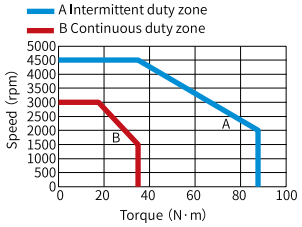
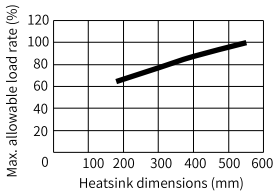
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	208 (241.8)	113±1	200	4 x ϕ13.5	127.4	140.5	73	187.5 (221.3)	20.5	3.2±0.3

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3	42	M16x32	$95^{0}_{-0.87}$	$37^{0}_{-0.2}$	12	12	8	21.7 (25.9)

4.4.22 MS1H3-55C15CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	5.5		
Voltage (V)	380		
Rated torque (N·m)	35		
Maximum torque (N·m)	87.6		
Rated current (A)	20.7		Heatsink-based derating curve
Maximum current (A)	52		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	1.92		
Rotor moment of inertia (kg·cm^2)	Motor without brake	86.9±10%	
	Motor with brake	94.55±10%	

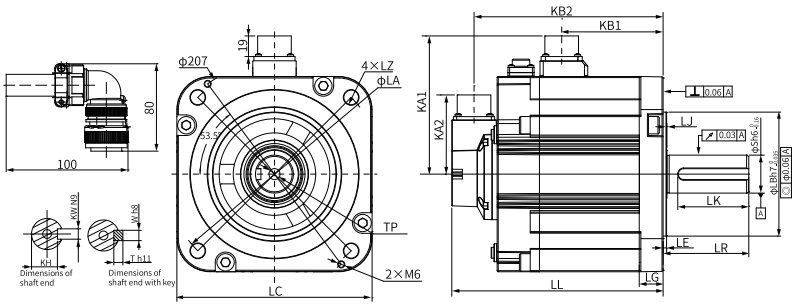
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
113	≤ 1764	≤ 588

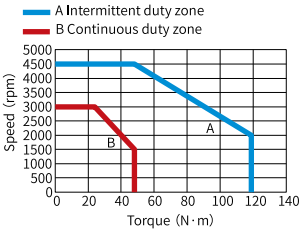
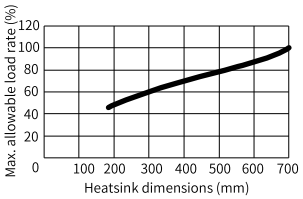
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	208 (241.8)	113±1	200	4 x ϕ13.5	127.4	140.5	73	187.5 (221.3)	20.5	3.2±0.3

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3	42	M16x32	$95^{0}_{-0.87}$	$37^{0}_{-0.2}$	12	12	8	21.7 (25.9)

4.4.23 MS1H3-75C15CD-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	7.5		
Voltage (V)	380		
Rated torque (N·m)	48		
Maximum torque (N·m)	119		
Rated current (A)	25		Heatsink-based derating curve
Maximum current (A)	65		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	2.13		
Rotor moment of inertia (kg·cm^2)	Motor without brake	127.5±10%	
	Motor with brake	135.15±10%	

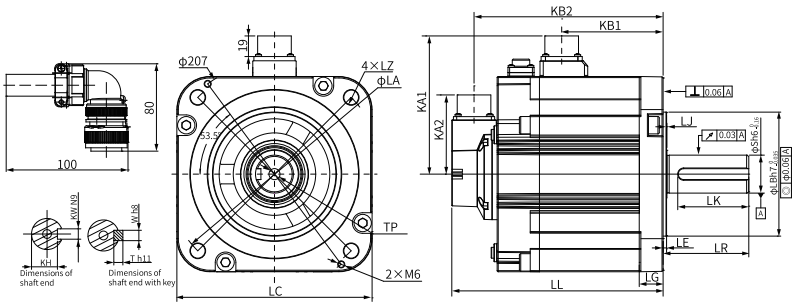
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
113	≤ 1764	≤ 588

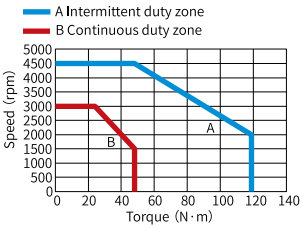
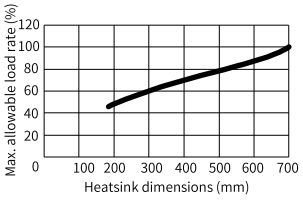
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	255 (288.8)	113±1	200	4 x ϕ13.5	127.4	187.5	73	234.5 (268.5)	20.5	3.2±0.3

LJ	LB	S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3	42	M16x32	$95^{0}_{-0.87}$	$37^{0}_{-0.2}$	12	12	8	29 (33.2)

4.4.24 MS1H3-75C15CD-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	180		
Inertia and capacity	Medium inertia and medium capacity		
Rated power (kW)	7.5		
Voltage (V)	380		
Rated torque (N·m)	48		
Maximum torque (N·m)	119		
Rated current (A)	25		Heatsink-based derating curve
Maximum current (A)	65		
Rated speed (rpm)	1500		
Maximum speed (rpm)	4500		
Torque coefficient (N·m/A)	2.13		
Rotor moment of inertia (kg·cm^2)	Motor without brake	127.5±10%	
	Motor with brake	135.15±10%	

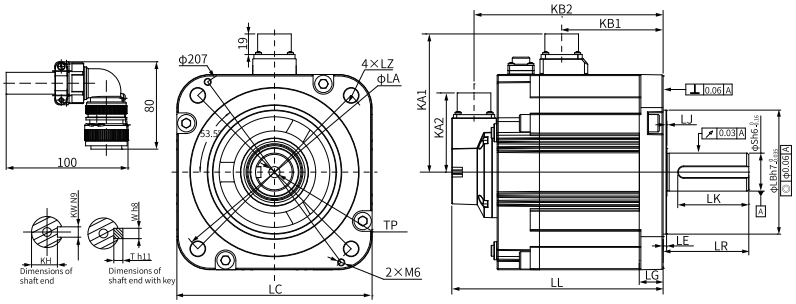
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
50	24	31	18.58	1.29	≤ 200	≤ 100	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
113	≤ 1764	≤ 588

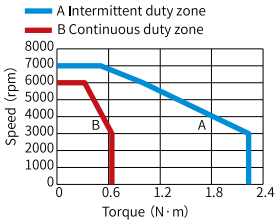
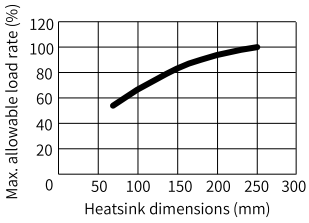
Product dimensions (mm)



LC	LL	LR	LA	LZ	KA1	KB1	KA2	KB2	LG	LE
180	255 (288.8)	113±1	200	4 x ϕ13.5	127.4	187.5	73	234.5 (268.5)	20.5	3.2±0.3
LJ	LB		S	TP	LK	KH	KW	W	T	Weight (kg)
0.3±0.75	114.3		42	M16x32	$95^{0}_{-0.87}$	$37^{0}_{-0.2}$	12	12	8	29 (33.2)

4.5 MS1H4 Series Motors with Medium Inertia and Small Capacity

4.5.1 MS1H4-20B30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	0.2		
Voltage (V)	220		
Rated torque (N·m)	0.64		
Maximum torque (N·m)	2.24		
Rated current (A)	1.3		Heatsink-based derating curve
Maximum current (A)	5.3		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.55		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.22±10%	
	Motor with brake	0.23±10%	

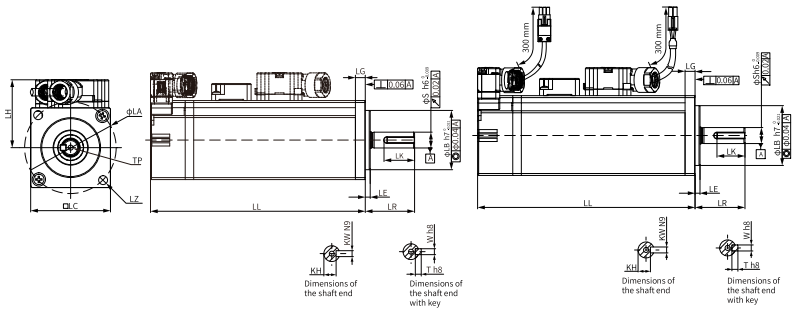
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1.5

Allowable load

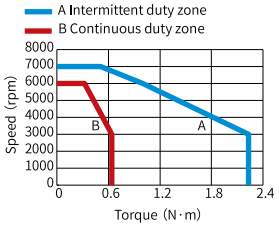
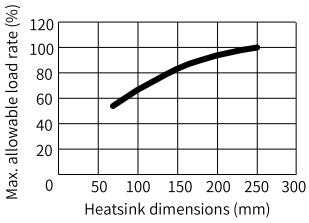
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	73.5 (101.1)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x8	$16.5^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	0.78 (1.16)

4.5.2 MS1H4-20B30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	0.2		
Voltage (V)	220		
Rated torque (N·m)	0.64		
Maximum torque (N·m)	2.24		
Rated current (A)	1.3		Heatsink-based derating curve
Maximum current (A)	5.3		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.55		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	0.22±10%	
	Motor with brake	0.23±10%	

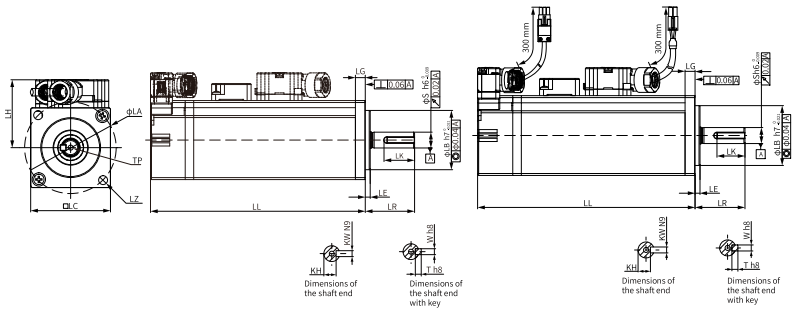
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1.5

Allowable load

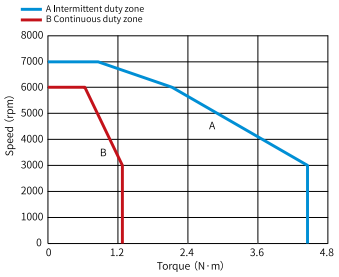
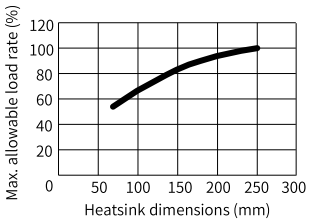
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	73.5 (101.1)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x8	$16.5^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	0.78 (1.16)

4.5.3 MS1H4-40B30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	medium inertia, small capacity		
Rated power (kW)	0.4		
Voltage (V)	220		
Rated torque (N·m)	1.27		
Maximum torque (N·m)	4.45		
Rated current (A)	2.4		Heatsink-based derating curve
Maximum current (A)	9.2		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.58		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.43±10%	
	Motor with brake	0.44±10%	

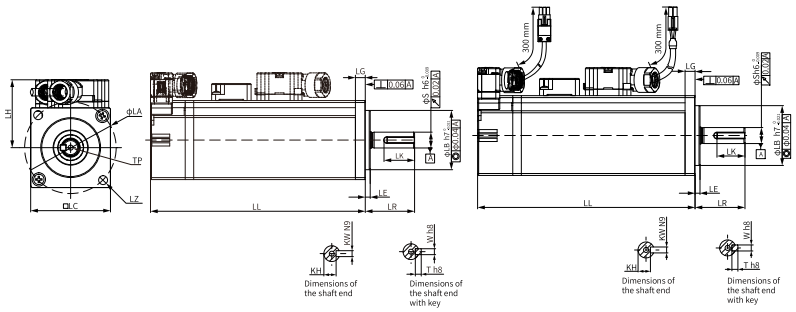
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1.5

Allowable load

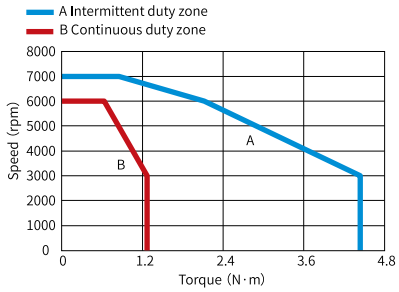
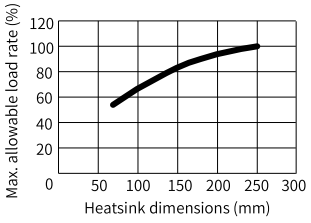
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	92 (119.8)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x8	$16.5^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	1.11 (1.48)

4.5.4 MS1H4-40B30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	60		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	0.4		
Voltage (V)	220		
Rated torque (N·m)	1.27		
Maximum torque (N·m)	4.45		
Rated current (A)	2.4		Heatsink-based derating curve
Maximum current (A)	9.2		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.58		
Rotor moment of inertia (kg·cm^2)	Motor without brake	0.43±10%	
	Motor with brake	0.44±10%	

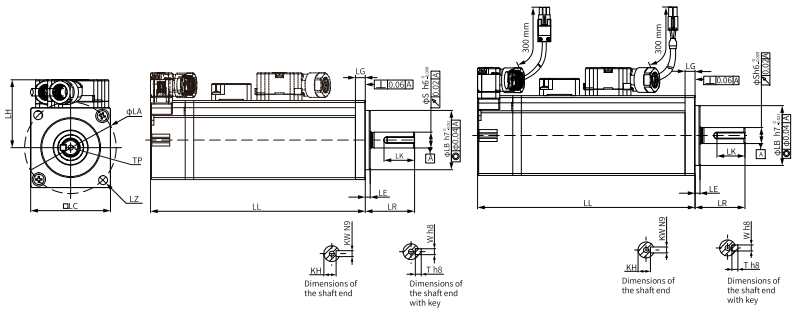
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
1.5	24	7.6	75.79	0.32	≤ 60	≤ 20	≤ 1.5

Allowable load

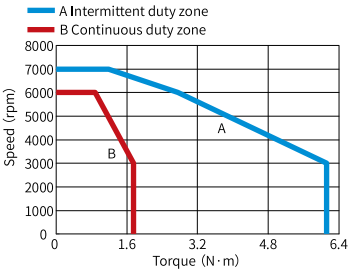
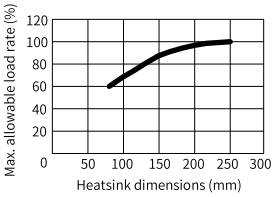
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
25	≤ 245	≤ 74

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	
60	92 (119.8)	30±0.5	70	4 x ϕ5.5	44	8.0	3±0.5	
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
50	14	M5x8	$16.5^{0}_{-0.53}$	$11^{0}_{-0.1}$	5	5	5	1.11 (1.48)

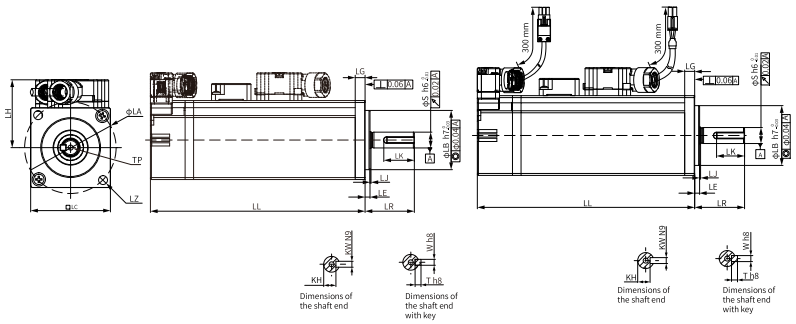
4.5.5 MS1H4-55B30CB-V631R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	0.55		
Voltage (V)	220		
Rated torque (N·m)	1.75		
Maximum torque (N·m)	6.13		
Rated current (A)	3.3		Heatsink-based derating curve
Maximum current (A)	13.2		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.58		
Rotor moment of inertia (kg·cm^2)	Motor without brake	1.12±10%	
	Motor with brake	-	

Allowable load

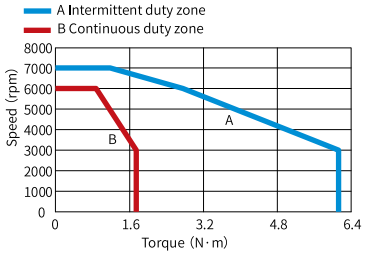
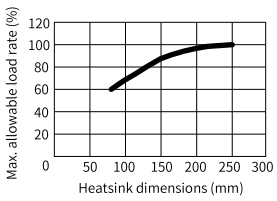
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	96.7	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	1.85

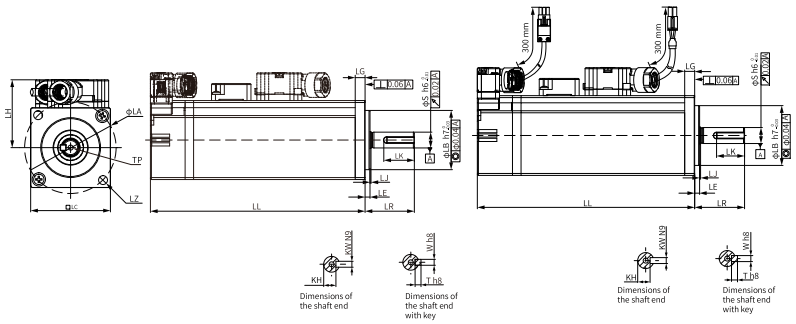
4.5.6 MS1H4-55B30CB-V331R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	0.55		
Voltage (V)	220		
Rated torque (N·m)	1.75		
Maximum torque (N·m)	6.13		
Rated current (A)	3.3		Heatsink-based derating curve
Maximum current (A)	13.2		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.58		
Rotor moment of inertia (kg·cm^2)	Motor without brake	1.12±10%	
	Motor with brake	-	

Allowable load

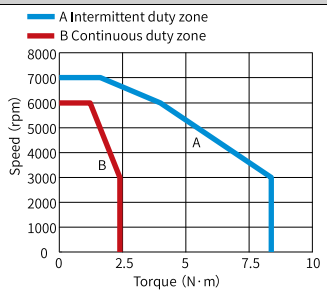
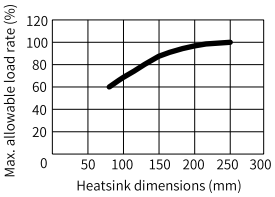
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	96.7	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	1.85

4.5.7 MS1H4-75B30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	0.75		
Voltage (V)	220		
Rated torque (N·m)	2.39		
Maximum torque (N·m)	8.37		
Rated current (A)	4.4		Heatsink-based derating curve
Maximum current (A)	16.9		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.63		
Rotor moment of inertia (kg·cm^2)	Motor without brake	1.46±10%	
	Motor with brake	1.51±10%	

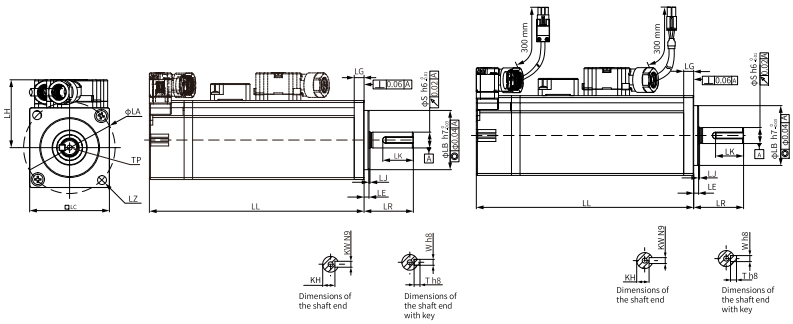
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

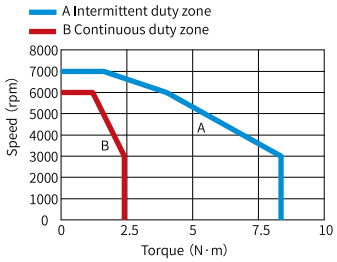
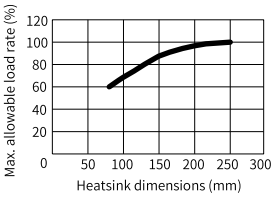
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	107.3 (141.5)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.18 (2.82)

4.5.8 MS1H4-75B30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	0.75		
Voltage (V)	220		
Rated torque (N·m)	2.39		
Maximum torque (N·m)	8.37		
Rated current (A)	4.4		Heatsink-based derating curve
Maximum current (A)	16.9		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.63		
Rotor moment of inertia (kg·cm^2)	Motor without brake	1.46±10%	
	Motor with brake	1.51±10%	

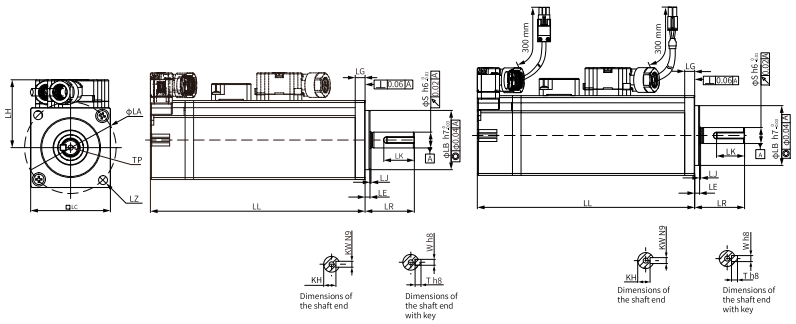
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

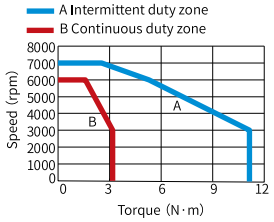
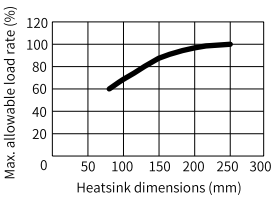
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	107.3 (141.5)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.18 (2.82)

4.5.9 MS1H4-10C30CB-V63*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	1.0		
Voltage (V)	220		
Rated torque (N·m)	3.18		
Maximum torque (N·m)	11.13		
Rated current (A)	6.5		Heatsink-based derating curve
Maximum current (A)	24		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.53		
Rotor moment of inertia ($kg·cm^2$)	Motor without brake	1.87±10%	
	Motor with brake	1.97±10%	

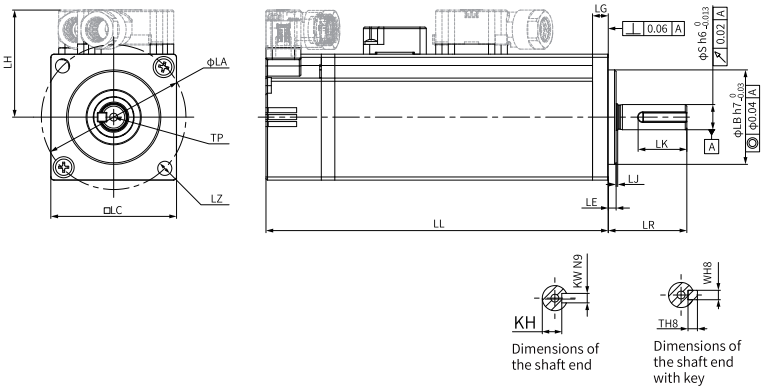
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

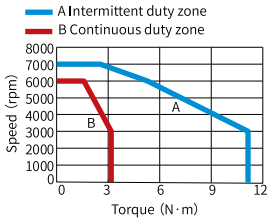
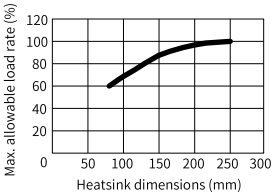
LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	118.7 (153.2)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.55 (2.9)

4.5.10 MS1H4-10C30CB-V33*R-INT

Motor specifications			Torque-Speed characteristics
Frame size (mm)	80		
Inertia and capacity	Medium inertia and small capacity		
Rated power (kW)	1.0		
Voltage (V)	220		
Rated torque (N·m)	3.18		
Maximum torque (N·m)	11.13		
Rated current (A)	6.5		Heatsink-based derating curve
Maximum current (A)	24		
Rated speed (rpm)	3000		
Maximum speed (rpm)	7000		
Torque coefficient (N·m/A)	0.53		
Rotor moment of inertia (kg·cm^2)	Motor without brake	1.87±10%	
	Motor with brake	1.97±10%	

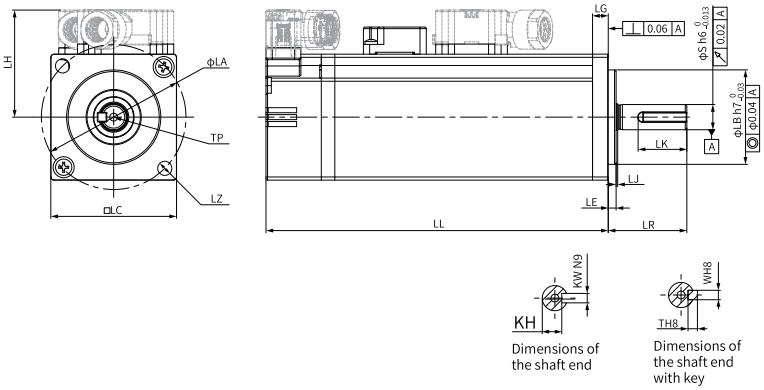
Electrical specifications of the brake

Holding torque (N·m)	Supply voltage (VDC)±10%	Rated power (W)	Coil resistance (Ω)±10%	Excitation current (A)	Apply time (ms)	Release time (ms)	Backlash (°)
3.2	24	10	57.6	0.42	≤ 60	≤ 40	≤ 1

Allowable load

LF (mm)	Allowable radial load (N)	Allowable axial load (N)
35	≤ 392	≤ 147

Product dimensions (mm)



LC	LL	LR	LA	LZ	LH	LG	LE	LJ
80	118.7 (153.2)	35±0.5	90	4 x ϕ7	54	7.5	3±0.5	0.5±0.35
LB	S	TP	LK	KH	KW	W	T	Weight (kg)
70	19	M6x20	$25^{0}_{-0.62}$	$15.5^{0}_{-0.1}$	6	6	6	2.55 (2.9)

5 Cable Selection

5.1 Model Description

Power cable model

S6-L- M 0 0 1 - 3.0 - T - INT
①②③④ ⑤ ⑥ ⑦

① **Servo system power cable** B: With brake M: Without brake	③ **Applicable power of the motor** 0: Frame sizes 60/80 1: Frame sizes 100/130/180 2: Frame size 180 (motors of 4.4 kW and above)	⑤ **Cable length (m)** 3.0: 3 5.0: 5 10.0: 10
② **Connector type at drive side** 0: U-type terminal 1: Tubular terminal	④ **Connector type at motor side** 1: 9-core aviation connector 2: 6-core aviation connector 7: MS1 custom connector (front outlet) 8: MS1 custom connector (rear outlet)	⑥ **Special requirements** Null: Non-flexible T: Flexible cables ≥ 10 million bending cycles ⑦ **Version** INT: Global version [1]

Note

[1]: The material of the global version cables complies with CE and UL certification.

Description of encoder cable model

S6-L- P 1 2 1 - 3.0 - T - INT
①②③④ ⑤ ⑥ ⑦

① **Servo system encoder cable** P: Encoder cable	③ **Encoder** 1: Communication-type incremental encoder 2: Multi-turn absolute encoder	⑤ **Cable length (m)** 3.0: 3 5.0: 5 10.0: 10
② **Connector type at drive side** 1: 1394 connector (5-pin)	④ **Connector type at motor side** 1: 17-core aviation connector 4: MS1 custom connector (front outlet) 5: MS1 custom connector (rear outlet)	⑥ **Special requirements** Null: Non-flexible T: Flexible cables ≥ 10 million bending cycles ⑥ **Version** INT: Global version [1]

Note

[1]: The material of the global series cables complies with CE and UL certification.

Model of communication cables

S6-L- T 00 - 3.0
① ② ③

① Cable type	② Communication cable connection type	③ Cable length (m)
T: Communication cable	00: Drive-to-PC communication cable 01: Network communication cable (CAN&485) of the drive 02: Drive-to-PLC communication cable 03: Communication termination resistor cable (CAN&485) of the drive 04: Network communication cable (EtherCAT) of the drive	0.3: 0.3

Note

For selection of cables, see section ''Cable Selection List''.

5.2 Cable Type

Fixed cables

Do not bend or move fixed cables during use. Bending or moving fixed cables may damage the cables and lead to a series of cable-related faults such as poor contact. Secure fixed cables through fixed binding. Certain bending radius must be available for the cables to prevent stress.

Recommended bending radius ≥ 5D (D: Cable diameter)

Flexible cables

Flexible cables can move along with cable carriers without a high risk of abrasion.

Recommended bending radius ≥ 10D (D: Cable diameter)

Note

- Do not wind or twist the cables in the cable carrier.
- Ensure the cable can move within the bending radius. Do not move the cables forcibly. Check that a relative movement between cables or between the cable and the guiding device is allowed.
- Do not fix or bundle the cables inside the cable carrier. The cables can be bundled and fixed only at two unmovable ends of the cable carrier.

Oil-resistant cables

Oil-resistant cables apply to such applications as machine tools, cutting fluids, and cutting compounds.

More information

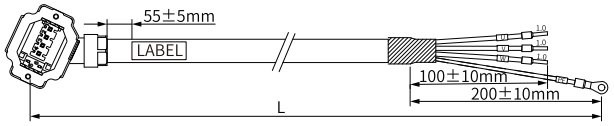
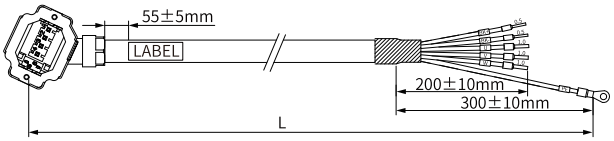
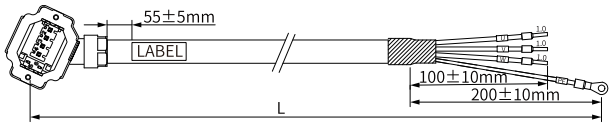
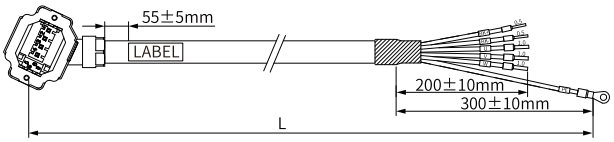
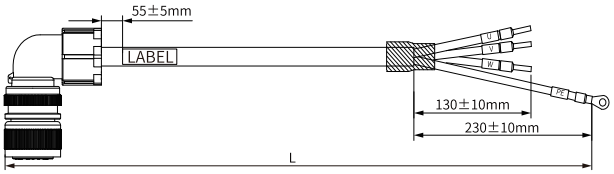
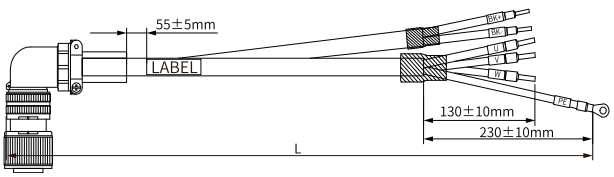
The terminal-type motor power cables and encoder cables require dedicated equipment and tooling for assembly. Order finished cables from channels authorized by Inovance.

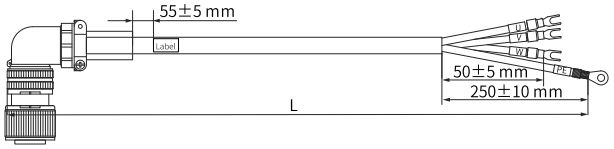
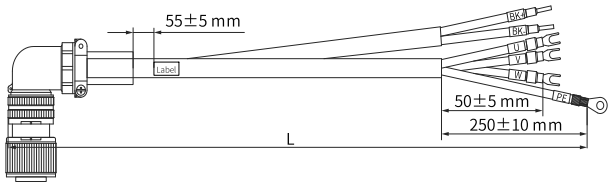
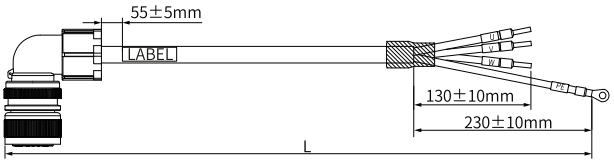
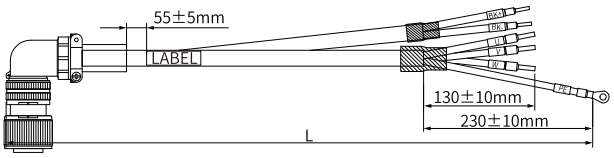
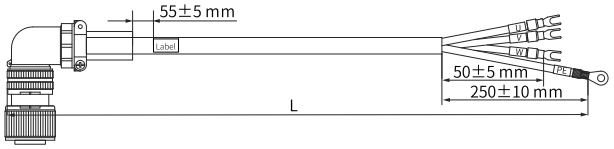
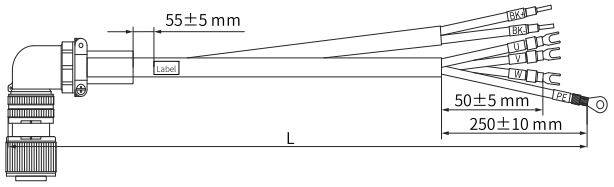
For motor information, see the user guide of the servo drive.

5.3 Cable Model Selection List

5.3.1 SV680-INT Series

Power cable

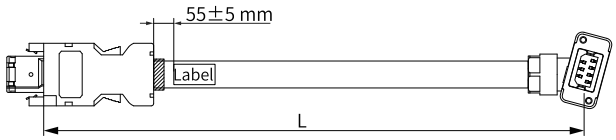
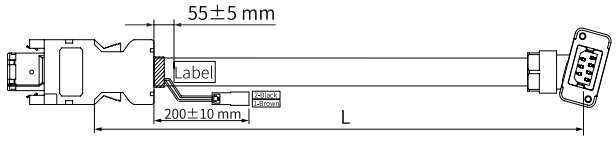
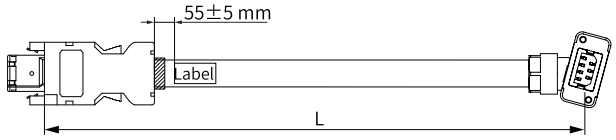
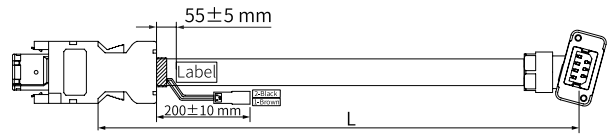
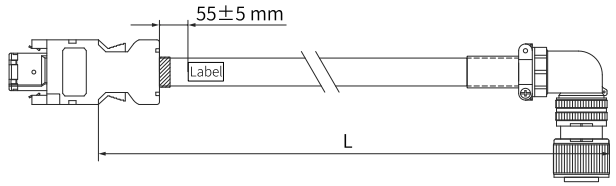
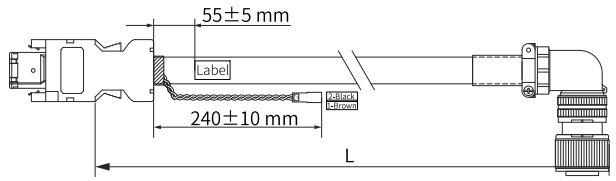
Motor model	Name		Cable model	Cable length (mm)	Drawing
MS1H1/ MS1H4 motor	Front outlet	Without brake	S6-L-M107-3.0(-T)-INT	3000	
			S6-L-M107-5.0(-T)-INT	5000	
			S6-L-M107-10.0(-T)-INT	10000	
		With brake	S6-L-B107-3.0(-T)-INT	3000	
			S6-L-B107-5.0(-T)-INT	5000	
			S6-L-B107-10.0(-T)-INT	10000	
	Rear outlet	Without brake	S6-L-M108-3.0(-T)-INT	3000	
			S6-L-M108-5.0(-T)-INT	5000	
			S6-L-M108-10.0(-T)-INT	10000	
		With brake	S6-L-B108-3.0(-T)-INT	3000	
			S6-L-B108-5.0(-T)-INT	5000	
			S6-L-B108-10.0(-T)-INT	10000	
MS1H2 motors rated 3 kW and below/ MS1H3 motors rated 1.8 kW and below	Without brake		S6-L-M111-3.0(-T)-INT	3000	
			S6-L-M111-5.0(-T)-INT	5000	
			S6-L-M111-10.0(-T)-INT	10000	
	With brake		S6-L-B111-3.0(-T)-INT	3000	
			S6-L-B111-5.0(-T)-INT	5000	
			S6-L-B111-10.0(-T)-INT	10000	

Motor model	Name	Cable model	Cable length (mm)	Drawing
MS1H2 motors rated 4 kW/5 kW	Without brake	S6-L-M011-3.0(-T)-INT	3000	
		S6-L-M011-5.0(-T)-INT	5000	
		S6-L-M011-10.0(-T)-INT	10000	
	With brake	S6-L-B011-3.0(-T)-INT	3000	
		S6-L-B011-5.0(-T)-INT	5000	
		S6-L-B011-10.0(-T)-INT	10000	
MS1H3 motors rated 2.9 kW	Without brake	S6-L-M112-3.0(-T)-INT	3100	
		S6-L-M112-5.0(-T)-INT	5100	
		S6-L-M112-10.0(-T)-INT	10100	
	With brake	S6-L-B112-3.0(-T)-INT	3100	
		S6-L-B112-5.0(-T)-INT	5100	
		S6-L-B112-10.0(-T)-INT	10100	
MS1H3 motor rated 4.4 kW or above	Without brake	S6-L-M022-3.0(-T)-INT	3000	
		S6-L-M022-5.0(-T)-INT	5000	
		S6-L-M022-10.0(-T)-INT	10000	
	With brake	S6-L-B022-3.0(-T)-INT	3000	
		S6-L-B022-5.0(-T)-INT	5000	
		S6-L-B022-10.0(-T)-INT	10000	

Note

- For more information about cables, see the hardware guide of the servo drive.
- Power cables are equipped with a shield as standard. Select a shield bracket and lock the clamp on the cable to the shield bracket.
- -T: The optional flexible cable is available.

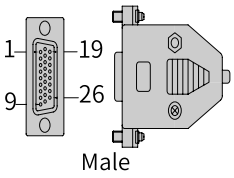
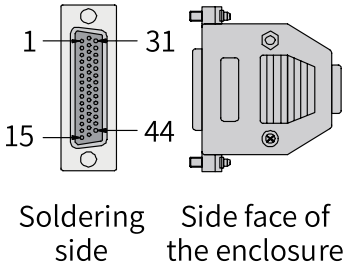
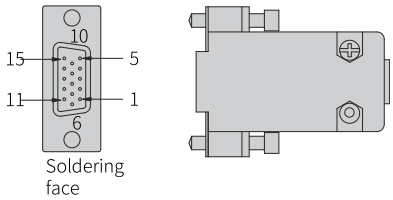
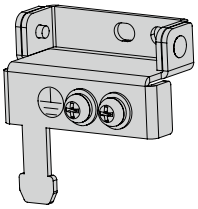
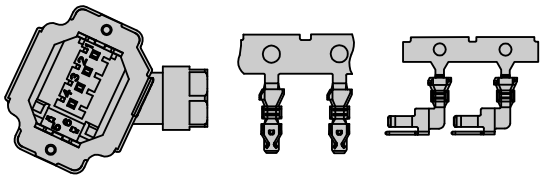
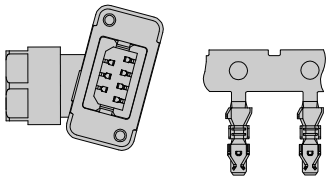
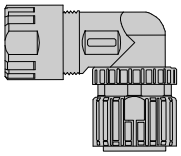
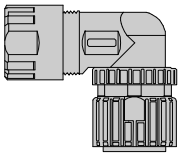
Encoder cable

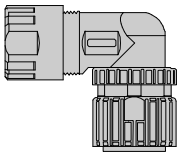
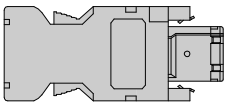
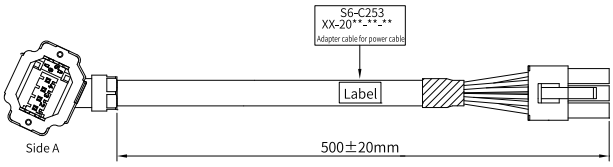
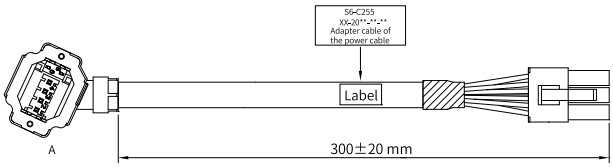
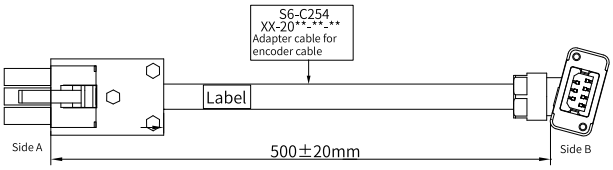
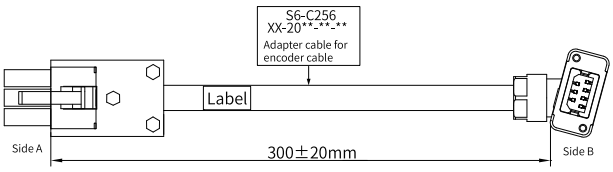
Motor Model	Name		Cable model	Cable length (mm)	Drawing
MS1H1/ MS1H4 motor	Front outlet	4-conductor cable	S6-L-P114-3.0(-T)-INT	3000	
			S6-L-P114-5.0(-T)-INT	5000	
			S6-L-P114-10.0(-T)-INT	10000	
		6-conductor cable [1]	S6-L-P124-3.0(-T)-INT	3000	
			S6-L-P124-5.0(-T)-INT	5000	
			S6-L-P124-10.0(-T)-INT	10000	
	Rear outlet	4-conductor cable	S6-L-P115-3.0(-T)-INT	3000	
			S6-L-P115-5.0(-T)-INT	5000	
			S6-L-P115-10.0(-T)-INT	10000	
		6-conductor cable [1]	S6-L-P125-3.0(-T)-INT	3000	
			S6-L-P125-5.0(-T)-INT	5000	
			S6-L-P125-10.0(-T)-INT	10000	
MS1H2/MS1H3 motor		4-conductor cable	S6-L-P111-3.0(-T)-INT	3000	
			S6-L-P111-5.0(-T)-INT	5000	
			S6-L-P111-10.0(-T)-INT	10000	
		6-conductor cable [1]	S6-L-P121-3.0(-T)-INT	3000	
			S6-L-P121-5.0(-T)-INT	5000	
			S6-L-P121-10.0(-T)-INT	10000	

Note

[1]The 6-conductor cable can be used normally. This type of cable is reserved for compatibility with the original battery model. It is not necessary to connect it to the battery box during use.

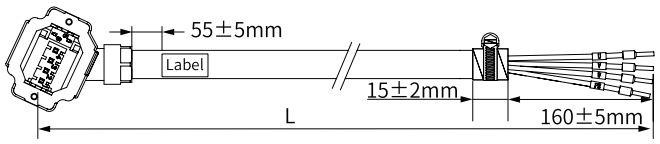
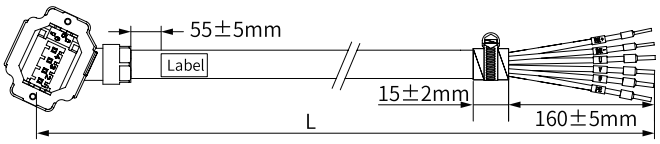
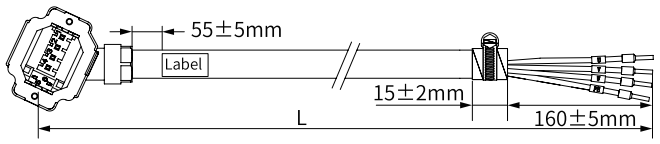
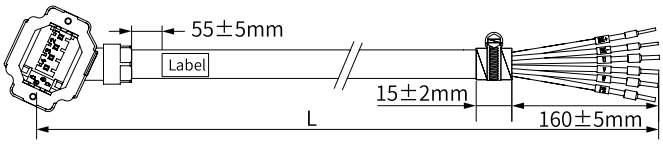
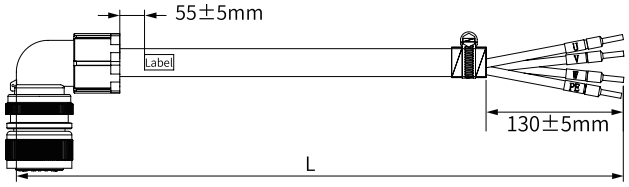
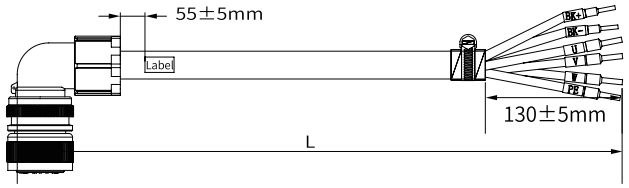
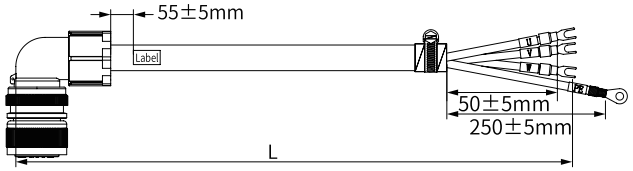
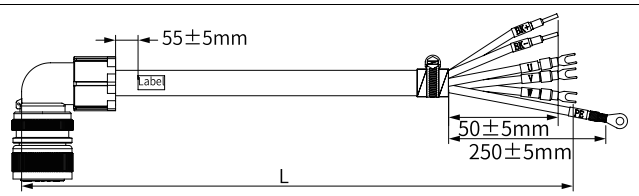
Connector kit

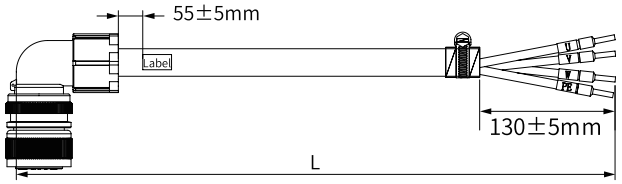
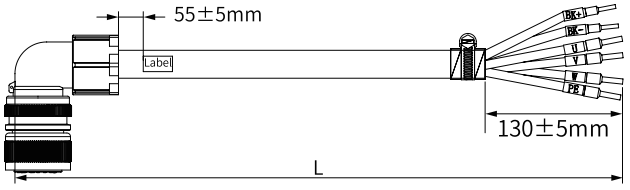
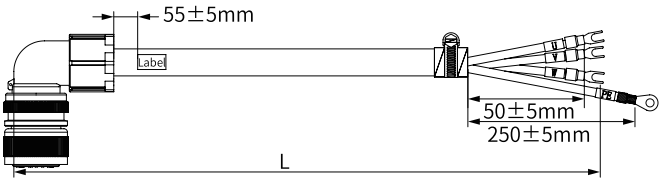
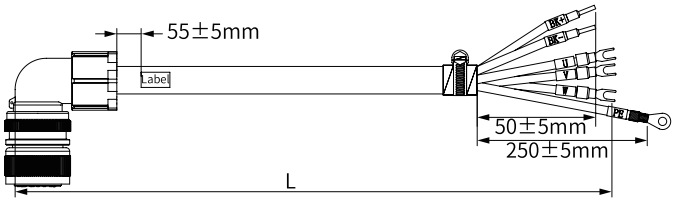
Name	Cable model	Drawing
CN1 terminal (DB26)	S6-C74	
CN1 terminal (DB44)	S6-C8	
CN7 terminal (DB15)	S6-C6	
Shield bracket	S6-C25 (optional for size A to size C)	
	S6-C27 (optional for size D to size E)	
Power connector at motor side with power below 750 W	S6-C246	
Encoder connector at motor side with power below 750 W	S6-C247	
Power connector for frame sizes 100 to 130 at motor side with power above 1000 W	S6-C248	
Power connector for frame size 180 at motor side with power above 1000 W	S6-C249	

Name	Cable model	Drawing
Encoder connector at motor side with power above 1000 W	S6-C250	
CN2 (1394)	S6-C251	
Power flying leads at motor side with power below 750 W - 500 mm	S6-C253	
Power flying leads at motor side with power below 750 W - 300 mm	S6-C255	
Encoder flying leads at motor side with power below 750 W - 500 mm	S6-C254	
Encoder flying leads at motor side with power below 750 W - 300 mm	S6-C256	

5.3.2 SV670-INT Series

Power cable

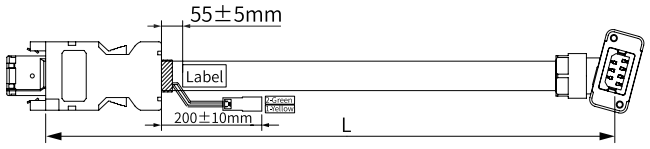
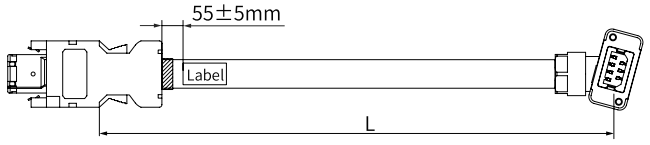
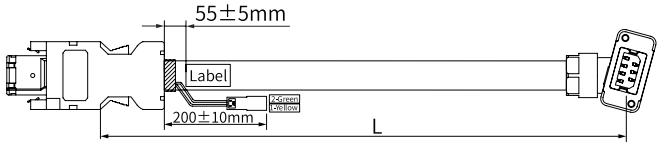
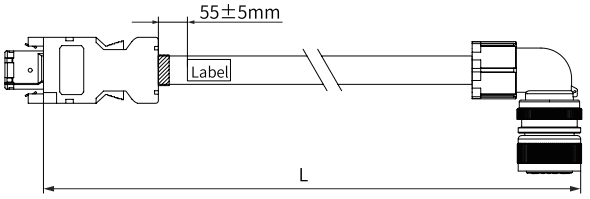
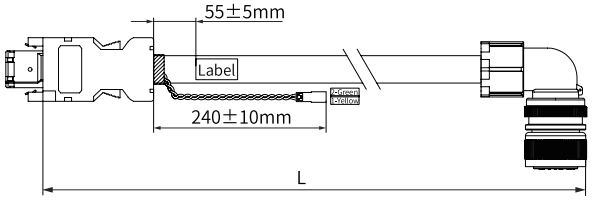
Motor model	Name		Cable model	Cable length (mm)	Drawing
MS1H1/ MS1H4 motor	Front outlet	Without brake	S6-L-M107-3.0 (-T) -INT	3000	
			S6-L-M107-5.0 (-T) -INT	5000	
			S6-L-M107-10.0 (-T) -INT	10000	
		With brake	S6-L-B107-3.0 (-T) -INT	3000	
			S6-L-B107-5.0 (-T) -INT	5000	
			S6-L-B107-10.0 (-T) -INT	10000	
	Rear outlet	Without brake	S6-L-M108-3.0 (-T) -INT	3000	
			S6-L-M108-5.0 (-T) -INT	5000	
			S6-L-M108-10.0 (-T) -INT	10000	
		With brake	S6-L-B108-3.0 (-T) -INT	3000	
			S6-L-B108-5.0 (-T) -INT	5000	
			S6-L-B108-10.0 (-T) -INT	10000	
MS1H2 motors rated 3 kW and below/ MS1H3 motors rated 1.8 kW and below	Without brake		S6-L-M111-3.0 (-T) -INT	3000	
			S6-L-M111-5.0 (-T) -INT	5000	
			S6-L-M111-10.0 (-T) -INT	10000	
	With brake		S6-L-B111-3.0 (-T) -INT	3000	
			S6-L-B111-5.0 (-T) -INT	5000	
			S6-L-B111-10.0 (-T) -INT	10000	
MS1H2 motors rated 4 kW/5 kW	Without brake		S6-L-M011-3.0 (-T) -INT	3000	
			S6-L-M011-5.0 (-T) -INT	5000	
			S6-L-M011-10.0 (-T) -INT	10000	
	With brake		S6-L-B011-3.0 (-T) -INT	3000	
			S6-L-B011-5.0 (-T) -INT	5000	
			S6-L-B011-10.0 (-T) -INT	10000	

Motor model	Name	Cable model	Cable length (mm)	Drawing
MS1H3 motors (2.9 kW)	Without brake	S6-L-M112-3.0 (-T) -INT	3000	
		S6-L-M112-5.0 (-T) -INT	5000	
		S6-L-M112-10.0 (-T) -INT	10000	
	With brake	S6-L-B112-3.0 (-T) -INT	3000	
		S6-L-B112-5.0 (-T) -INT	5000	
		S6-L-B112-10.0 (-T) -INT	10000	
MS1H3 (4.4 kW and above)	Without brake	S6-L-M022-3.0 (-T) -INT	3000	
		S6-L-M022-5.0 (-T) -INT	5000	
		S6-L-M022-10.0 (-T) -INT	10000	
	With brake	S6-L-B022-3.0 (-T) -INT	3000	
		S6-L-B022-5.0 (-T) -INT	5000	
		S6-L-B022-10.0 (-T) -INT	10000	

Note

- For more information about cables, see the hardware guide of the servo drive.
- Power cables are equipped with a shield as standard. Select a shield bracket and lock the clamp on the cable to the shield bracket.
- -T: The optional flexible cable is available.

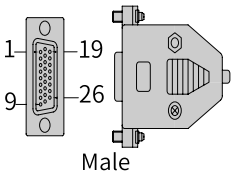
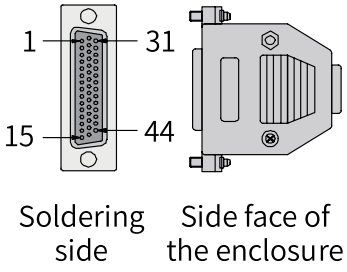
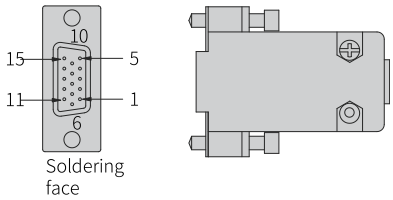
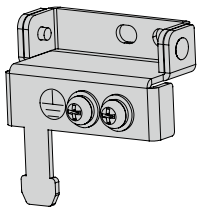
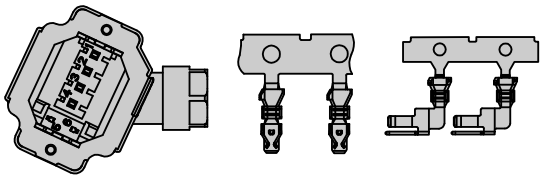
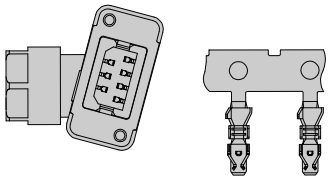
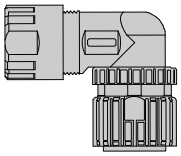
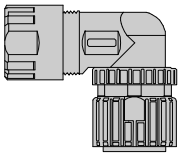
Encoder cable

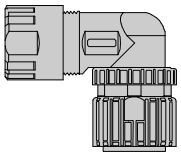
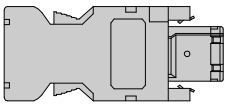
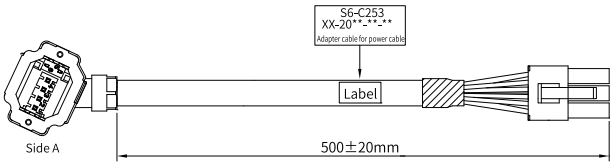
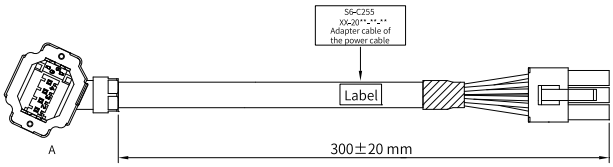
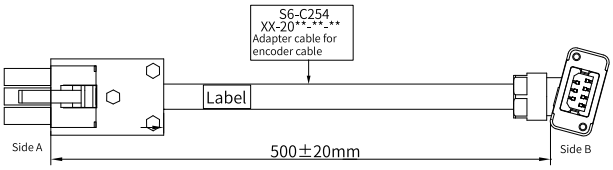
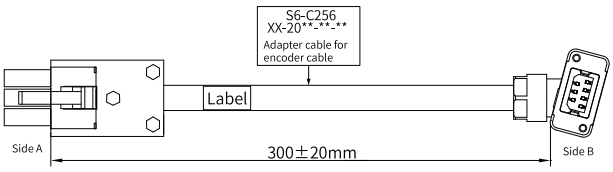
Motor model	Name		Cable model	Cable length (mm)	Drawing
MS1H1/ MS1H4 terminal type motors	Front outlet	4-conductor cable	S6-L-P114-3.0 (-T) -INT	3000	
			S6-L-P114-5.0 (-T) -INT	5000	
			S6-L-P114-10.0 (-T) -INT	10000	
		6-conductor cable [1]	S6-L-P124-3.0 (-T) -INT	3000	
			S6-L-P124-5.0 (-T) -INT	5000	
			S6-L-P124-10.0 (-T) -INT	10000	
	Rear outlet	4-conductor cable	S6-L-P115-3.0 (-T) -INT	3000	
			S6-L-P115-5.0 (-T) -INT	5000	
			S6-L-P115-10.0 (-T) -INT	10000	
		6-conductor cable [1]	S6-L-P125-3.0 (-T) -INT	3000	
			S6-L-P125-5.0 (-T) -INT	5000	
			S6-L-P125-10.0 (-T) -INT	10000	
MS1H2/MS1H3 motor		4-conductor cable	S6-L-P111-3.0 (-T) -INT	3000	
			S6-L-P111-5.0 (-T) -INT	5000	
			S6-L-P111-10.0 (-T) -INT	10000	
		6-conductor cable [1]	S6-L-P121-3.0 (-T) -INT	3000	
			S6-L-P121-5.0 (-T) -INT	5000	
			S6-L-P121-10.0 (-T) -INT	10000	

Note

[1]The 6-conductor cable can be used normally. This type of cable is reserved for compatibility with the original battery model. It is not necessary to connect it to the battery box during use.

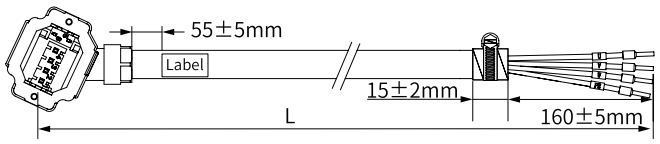
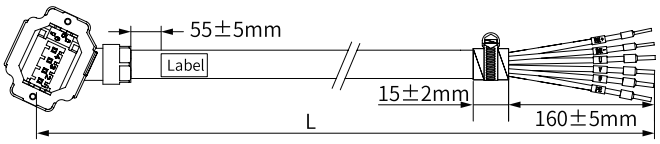
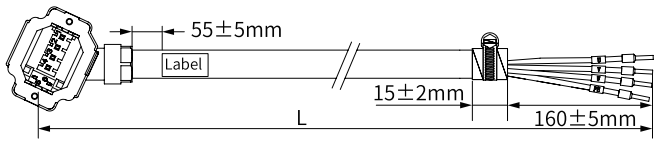
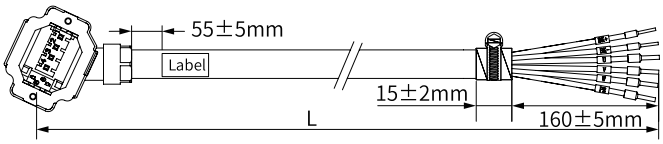
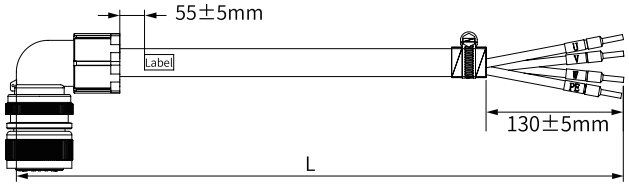
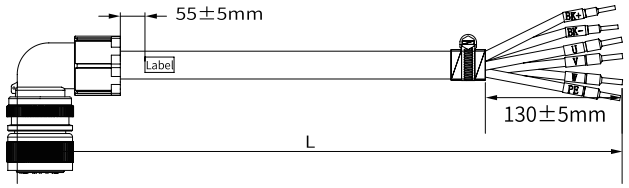
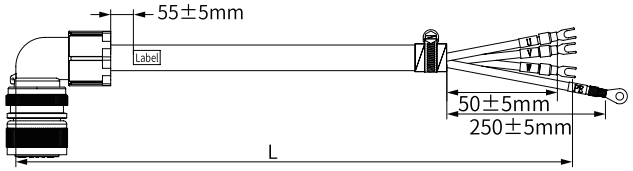
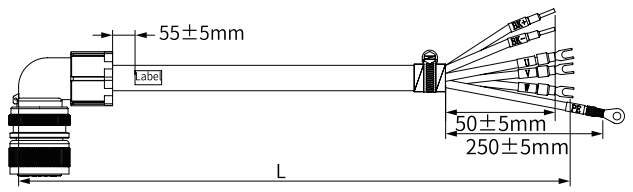
Connector kit

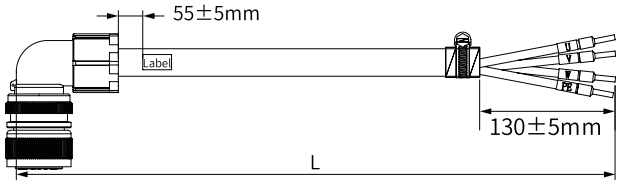
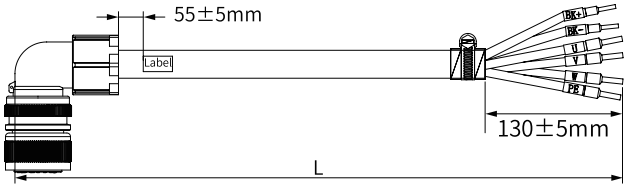
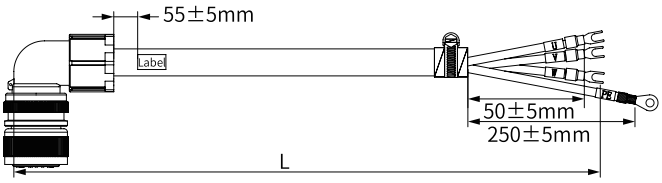
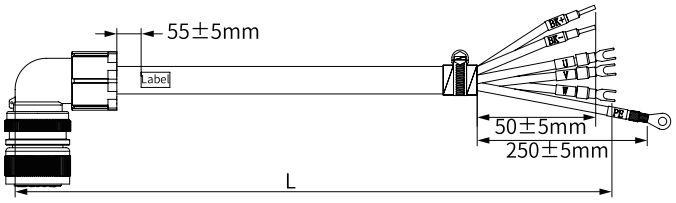
Name	Cable model	Drawing
CN1 terminal (DB26)	S6-C74	
CN1 terminal (DB44)	S6-C8	
CN7 terminal (DB15)	S6-C6	
Shield bracket	S6-C25 (optional for size A to size C)	
	S6-C27 (optional for size D to size E)	
Power connector at motor side with power below 750 W	S6-C246	
Encoder connector at motor side with power below 750 W	S6-C247	
Power connector for frame sizes 100 to 130 at motor side with power above 1000 W	S6-C248	
Power connector for frame size 180 at motor side with power above 1000 W	S6-C249	

Name	Cable model	Drawing
Encoder connector at motor side with power above 1000 W	S6-C250	
CN2 (1394)	S6-C251	
Power flying leads at motor side with power below 750 W - 500 mm	S6-C253	
Power flying leads at motor side with power below 750 W - 300 mm	S6-C255	
Encoder flying leads at motor side with power below 750 W - 500 mm	S6-C254	
Encoder flying leads at motor side with power below 750 W - 300 mm	S6-C256	

5.3.3 SV660-INT Series

Power cable

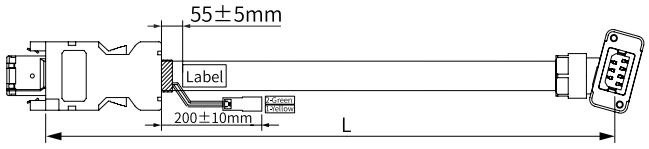
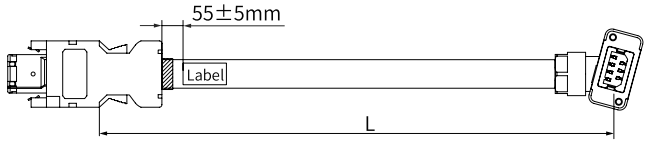
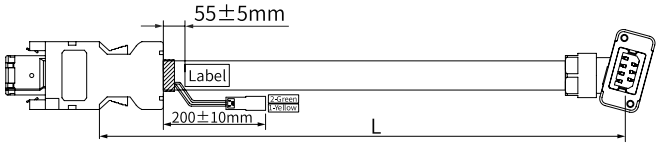
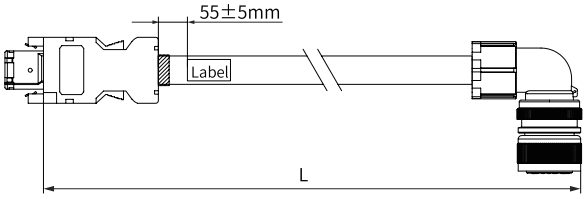
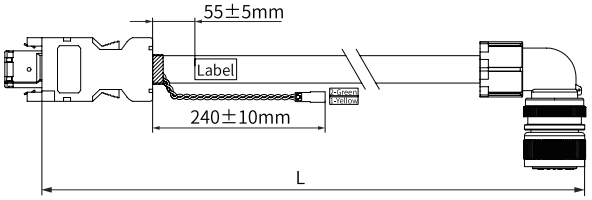
Motor model	Name		Cable model	Cable length (mm)	Drawing
MS1H1/ MS1H4 motor	Front outlet	Without brake	S6-L-M107-3.0 (-T) -INT	3000	
			S6-L-M107-5.0 (-T) -INT	5000	
			S6-L-M107-10.0 (-T) -INT	10000	
		With brake	S6-L-B107-3.0 (-T) -INT	3000	
			S6-L-B107-5.0 (-T) -INT	5000	
			S6-L-B107-10.0 (-T) -INT	10000	
	Rear outlet	Without brake	S6-L-M108-3.0 (-T) -INT	3000	
			S6-L-M108-5.0 (-T) -INT	5000	
			S6-L-M108-10.0 (-T) -INT	10000	
		With brake	S6-L-B108-3.0 (-T) -INT	3000	
			S6-L-B108-5.0 (-T) -INT	5000	
			S6-L-B108-10.0 (-T) -INT	10000	
MS1H2 motors rated 3 kW and below/ MS1H3 motors rated 1.8 kW and below	Without brake		S6-L-M111-3.0 (-T) -INT	3000	
			S6-L-M111-5.0 (-T) -INT	5000	
			S6-L-M111-10.0 (-T) -INT	10000	
	With brake		S6-L-B111-3.0 (-T) -INT	3000	
			S6-L-B111-5.0 (-T) -INT	5000	
			S6-L-B111-10.0 (-T) -INT	10000	
MS1H2 motors rated 4 kW/5 kW	Without brake		S6-L-M011-3.0 (-T) -INT	3000	
			S6-L-M011-5.0 (-T) -INT	5000	
			S6-L-M011-10.0 (-T) -INT	10000	
	With brake		S6-L-B011-3.0 (-T) -INT	3000	
			S6-L-B011-5.0 (-T) -INT	5000	
			S6-L-B011-10.0 (-T) -INT	10000	

Motor model	Name	Cable model	Cable length (mm)	Drawing
MS1H3 motors (2.9 kW)	Without brake	S6-L-M112-3.0 (-T) -INT	3000	
		S6-L-M112-5.0 (-T) -INT	5000	
		S6-L-M112-10.0 (-T) -INT	10000	
	With brake	S6-L-B112-3.0 (-T) -INT	3000	
		S6-L-B112-5.0 (-T) -INT	5000	
		S6-L-B112-10.0 (-T) -INT	10000	
MS1H3 (4.4 kW and above)	Without brake	S6-L-M022-3.0 (-T) -INT	3000	
		S6-L-M022-5.0 (-T) -INT	5000	
		S6-L-M022-10.0 (-T) -INT	10000	
	With brake	S6-L-B022-3.0 (-T) -INT	3000	
		S6-L-B022-5.0 (-T) -INT	5000	
		S6-L-B022-10.0 (-T) -INT	10000	

Note

- For more information about cables, see the hardware guide of the servo drive.
- Power cables are equipped with a shield as standard. Select a shield bracket and lock the clamp on the cable to the shield bracket.
- -T: The optional flexible cable is available.

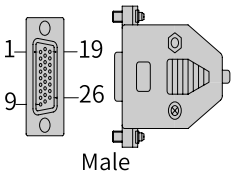
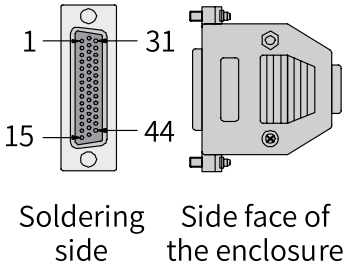
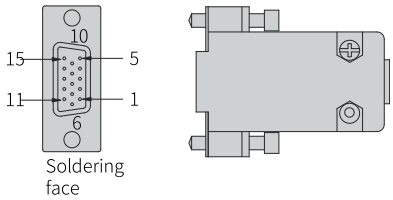
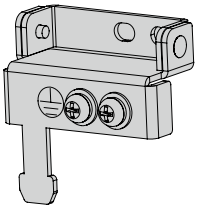
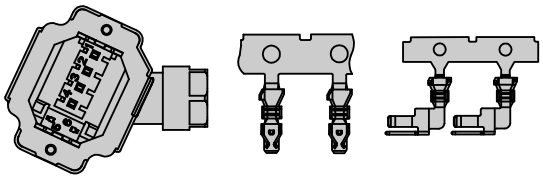
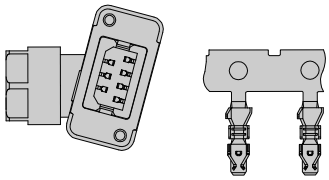
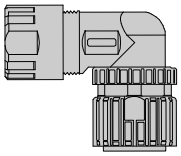
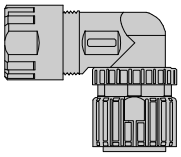
Encoder cable

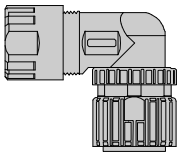
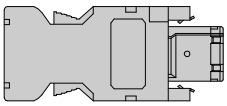
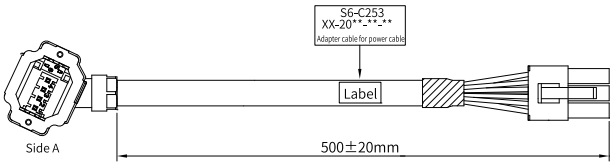
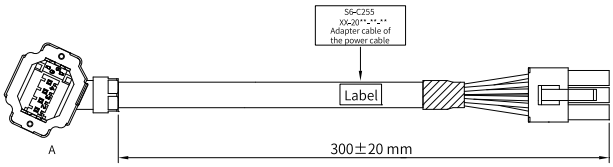
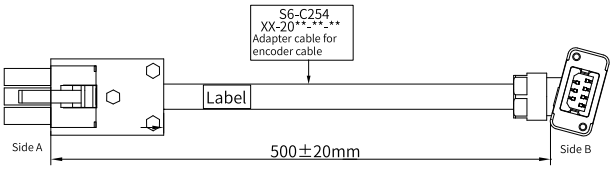
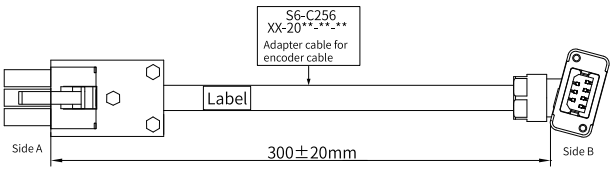
Motor Model	Name		Cable model	Cable length (mm)	Drawing
MS1H1/ MS1H4 terminal type motors	Front outlet	4-conductor cable	S6-L-P114-3.0 (-T) -INT	3000	
			S6-L-P114-5.0 (-T) -INT	5000	
			S6-L-P114-10.0 (-T) -INT	10000	
		6-conductor cable [1]	S6-L-P124-3.0 (-T) -INT	3000	
			S6-L-P124-5.0 (-T) -INT	5000	
			S6-L-P124-10.0 (-T) -INT	10000	
	Rear outlet	4-conductor cable	S6-L-P115-3.0 (-T) -INT	3000	
			S6-L-P115-5.0 (-T) -INT	5000	
			S6-L-P115-10.0 (-T) -INT	10000	
		6-conductor cable [1]	S6-L-P125-3.0 (-T) -INT	3000	
			S6-L-P125-5.0 (-T) -INT	5000	
			S6-L-P125-10.0 (-T) -INT	10000	
MS1H2/MS1H3 motor		4-conductor cable	S6-L-P111-3.0 (-T) -INT	3000	
			S6-L-P111-5.0 (-T) -INT	5000	
			S6-L-P111-10.0 (-T) -INT	10000	
		6-conductor cable [1]	S6-L-P121-3.0 (-T) -INT	3000	
			S6-L-P121-5.0 (-T) -INT	5000	
			S6-L-P121-10.0 (-T) -INT	10000	

Note

[1]The 6-conductor cable can be used normally. This type of cable is reserved for compatibility with the original battery model. It is not necessary to connect it to the battery box during use.

Connector kit

Name	Cable model	Drawing
CN1 terminal (DB26)	S6-C74	
CN1 terminal (DB44)	S6-C8	
CN7 terminal (DB15)	S6-C6	
Shield bracket	S6-C25 (optional for size A to size C)	
	S6-C27 (optional for size D to size E)	
Power connector at motor side with power below 750 W	S6-C246	
Encoder connector at motor side with power below 750 W	S6-C247	
Power connector for frame sizes 100 to 130 at motor side with power above 1000 W	S6-C248	
Power connector for frame size 180 at motor side with power above 1000 W	S6-C249	

Name	Cable model	Drawing
Encoder connector at motor side with power above 1000 W	S6-C250	
CN2 (1394)	S6-C251	
Power flying leads at motor side with power below 750 W - 500 mm	S6-C253	
Power flying leads at motor side with power below 750 W - 300 mm	S6-C255	
Encoder flying leads at motor side with power below 750 W - 500 mm	S6-C254	
Encoder flying leads at motor side with power below 750 W - 300 mm	S6-C256	

5.4 Description of Cable Terminals

5.4.1 Power Cable Terminals

Danger

- Do not connect output terminals U, V, or W of the drive to a three-phase power supply. Failure to comply may result in physical injury or a fire.
- Do not connect motor terminals U, V, or W to a mains power supply. Failure to comply may result in physical injury or a fire.
- The main circuit cable must be away from the motor to prevent the cable insulation from being damaged by high temperature of the motor surface.
- Connect the servo drive to the motor directly. Do not use an electromagnetic contactor during wiring. Failure to comply may result in faults.

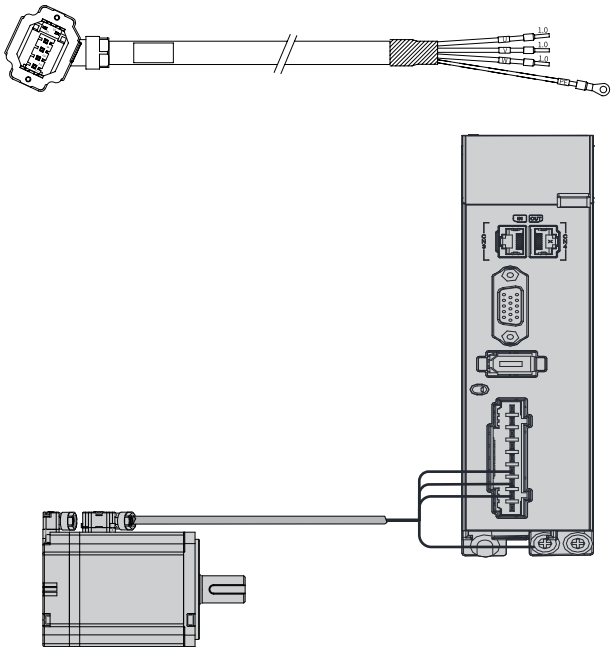
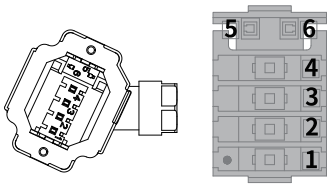


Figure 5-1 Wiring between the drive and terminal type motor

- The following tables shows power cable connector of the motor with a small frame size.

Table 5–1 Description of the power cable connector (motor side)

Applicable motor frame size [1]	Drawing of the connector	Pin layout		
		Pin No.	Name	Color
60 80	 Black 6-pin connector	1	PE	Yellow/Green
		2	W	Red
		3	V	Black
		4	U	White
		5	Brake [2]	Brown
		6		Blue

Note

- [1] The frame size refers to the width of the mounting flange (in mm).
- Power cable colors are subject to the actual product. All cable colors mentioned in this guide refer to Inovance cable colors.
- Ground the motor to the PE position of the drive screw if possible. For details, see System Wiring Diagram.
- [2] During wiring of the motor that equipped with a magnetic encoder, connect the brake signal cables BK+ and BK- of the power cable to the DO+ and DO- terminals of the drive respectively. This is to prevent rotation precision of the encoder from being affected by reverse connection of the brake cable.

- The following tables shows power cable connector of the motor with a large frame size.

Table 5–2 Description of the power cable connector (motor side)

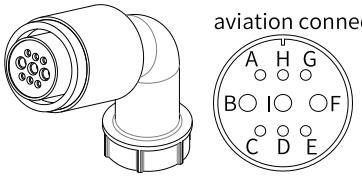
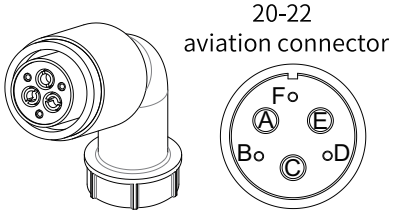
Applicable motor frame size [1]	Drawing of the connector	Pin layout		
		Pin No.	Name	Color
100 130	20-18 aviation connector  MIL-DTL-5015 series 3108E20-18S aviation connector	B	U	Blue
		I	V	Black
		F	W	Red
		G	PE	Yellow/Green
		C	Brake [2]	Red
		E		Black

Table 5–3 Description of the power cable connector (motor side)

Applicable motor frame size [1]	Drawing of the connector	Pin layout		
		Pin No.	Name	Color
180	20-22 aviation connector  MIL-DTL-5015 series 3108E20-22S aviation connector	A	U	Blue
		C	V	Black
		E	W	Red
		F	PE	Yellow/Green
		B	Brake [2]	Red
		D		Black

Note

- [1] The frame size refers to the width of the mounting flange (in mm).
- Power cable colors are subject to the actual product. All cable colors mentioned in this guide refer to Inovance cable colors.
- Ground the motor to the screw PE terminal of the drive if possible. For details, see System Wiring Diagram in the user guide of the servo drive.
- [2] During wiring of the motor that equipped with a magnetic encoder, connect the brake signal cables BK+ and BK- of the power cable to the DO+ and DO- terminals of the drive respectively. This is to prevent rotation precision of the encoder from being affected by reverse connection of the brake cable.

Cable shield requirements

Take proper shielding measures in the following locations to prevent equipment damage:

- Locations with interference caused by static electricity
- Locations with strong electric field or magnetic field
- Locations with radioactive rays

The motor power cable shield needs to be connected to the grounding cable of the power cable, as shown in the following figure.

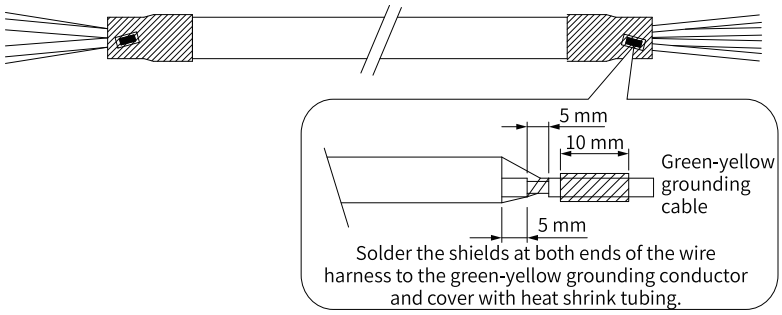


Figure 5-2 Wiring of the shield

5.4.2 Encoder Cable Terminals

Cable specifications

- Ground the shields on both the servo drive side and the motor side. Failure to comply can result in a false alarm.
- Do not connect cables to the "reserved" terminals.
- Given the voltage drop caused by cable resistance and signal attenuation caused by distributed capacitance, it is recommended to use twisted-pair cables of 26AWG or above (as per UL20276 standard) with length shorter than or equal to 10 m as the encoder cable.

Note

It is recommended to use 22AWG to 26AWG cables for 10B, 20B, 40B, and 75B series motors. If a longer cable is required, increase the cable cross sectional area properly. See *"Table 5-4 Recommended cables" on page 119* for details.

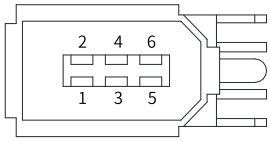
Table 5–4 Recommended cables

Cable size (AWG)	Cable resistance per unit length (Ω/km)	Permissible cable length (m)
3P x 26	143	0 to 10
1P x 22 + 2P x 26	54.3	10 to 26.4
1P x 20 + 2P x 24	33.9	26.4 to 42.2
1P x 18 + 2P x 22	21.4	42.2 to 66.8
1P x 16 + 2P x 18	13.5	66.8 to 105.0

Note

- The above length can be increased by 2 m to 3 m.
- If the cables above 16AWG are required, contact the sales personnel of Inovance.

Terminal layout



Encoder signal terminal CN2 (drive side)

Figure 5-3 Layout of encoder terminal pins

Table 5–5 Description of encoder terminal pins

Pin No.	Assignment	Description
1	+5V	5 V power supply
2	GND	
3	Reserved	-
4	Reserved	-
5	PS+	Gantry synchronization signal
6	PS-	
Enclosure	PE	Shield

Description

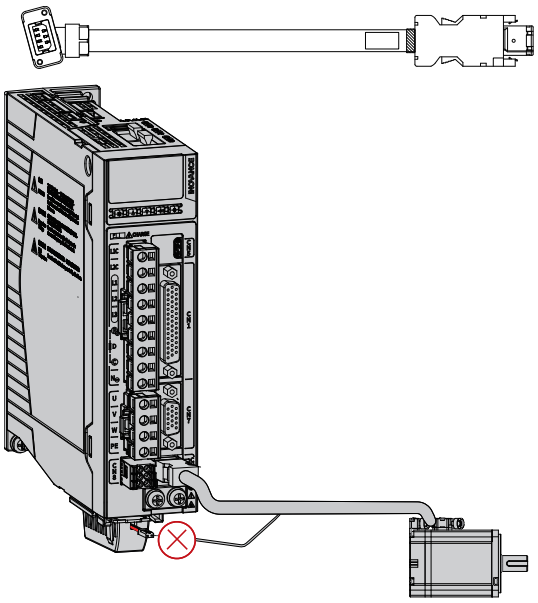


Figure 5-4 Wiring example of absolute encoder signals [1]

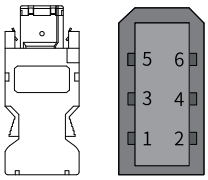
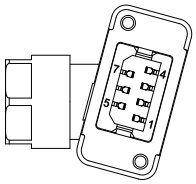
Note

[1]The battery kit of the drive is no longer required. Connecting the battery-less encoder to the battery box by mistake will not damage the encoder.

The 6-conductor cable can be used normally. The cable is reserved for compatibility with the original battery model. The battery box does not need to be connected during use.

The encoder cable color is subject to the color of the actual product. Cable colors mentioned in this guide all refer to Inovance cables.

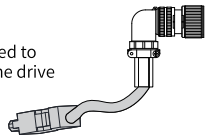
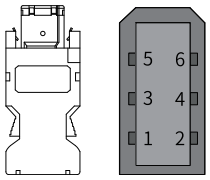
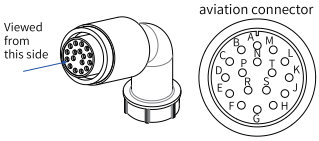
Table 5–6 Encoder cable connector for the motor with a small frame size

Applicable motor frame size [1]	Drawing of the connector		Pin layout			
			Pin No.	Name	Color	Type
60 80	Drive side	 6-pin male (right side as the joint face)	1	+5V	Red	Twisted pair
			2	GND	Orange	
			5	PS+	Blue	Twisted pair
			6	PS-	Purple	
			Enclosure	PE	-	-
	Motor side	 7-pin connector	1	PS+	Blue	Twisted pair
			2	PS-	Purple	
			3	-	-	Twisted pair
			4	-	-	
			5	+5V	Red	Twisted pair
			6	GND	Orange	
			7	PE	-	-

Note

[1] The frame size refers to the width of the mounting flange (in mm).

Table 5–7 Encoder cable connector for the motor with a large frame size

Applicable motor frame size [1]	Drawing of the connector			Pin layout			
				Pin No.	Name	Color	Type
100 130 180		Drive side	 6-pin male (right side as the joint face)	1	+5V	Red	Twisted pair
				2	GND	Orange	
				5	PS+	Blue	Twisted pair
				6	PS-	Purple	
				Enclosure	PE	-	-
		Motor side		A	PS+	Blue	Twisted pair
				B	PS-	Purple	
				E	-	-	-
				F	-	-	
				G	+5V	Red	-
				H	GND	Orange	
				J	Shield	-	

Note

[1] The frame size refers to the width of the mounting flange (in mm).

5.5 Connectors

Terminal-type power connector

Note

Check that the connector cushion is in place before connection.

Align pins 5 and 6 to corresponding holes (as shown in the following figure) and insert them into the holes. Do not insert pins 5 and 6 forcibly. After insertion, screw down with a tightening torque of 1.5 ±0.5 kgf.cm.

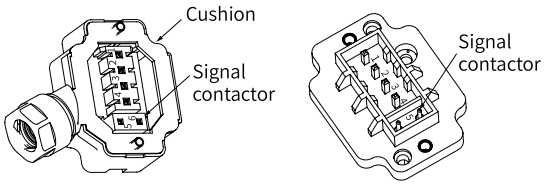


Figure 5-5 Power connector

Terminal-type encoder connector

Note

Screw-down is allowed only when the rubber gasket of the plug is in place with both long edges locked into the enclosure slot flatly.

Connectors and sockets are designed with fool-proof chamfers (as shown below). Align the fool-proof chamfer before insertion. After insertion, screw down the two screws on the connector with a tightening torque of 1.5±0.5 kgf.cm·m.

Screw-down is allowed only when the rubber gasket of the plug is in place with both long edges locked into the enclosure slot flatly.

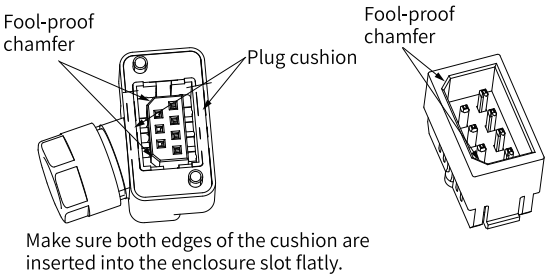


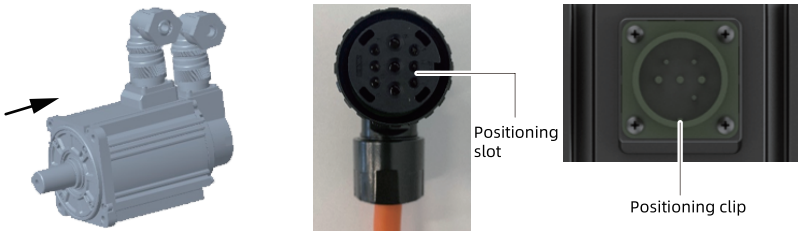
Figure 5-6 Encoder connector

Note

- The assembly direction of the connector insulator is subject to the actual direction.
- Do not energize an electrical connector connected loosely. Plug-in/out is not allowed when the power is on.
- The mating life of the electrical connector is 50 cycles. Keep the connector and socket clean during use. Handle the connector and socket with care to prevent damage.
- Before connecting the male and female connectors, ensure they are free from condensation and pollutants. Take protective measures for idled connectors to prevent intrusion of dust and liquid.

Aviation connector

The aviation connector cable is connected to the motor. By default, the cable outlet direction is on the right side of the motor (viewed from the motor output shaft end), as shown in the following figure.



Check that the connector positioning slot on the cable side is in the same direction as the connector positioning clip on the motor side before tightening the connector. After inserting the connector, tighten the lock bolt to the bottom of the cable until it is fixed. Check that no threads are exposed.

To adjust the cable outlet direction, unscrew the bolts shown in the following figure to adjust the outlet direction.



Power cable and encoder cable adapter scheme

Recommended power cable connector models: Molex-39039062 and Molex-469990295;
Recommended encoder cable connector model: TE-1-172169-9, as shown below.

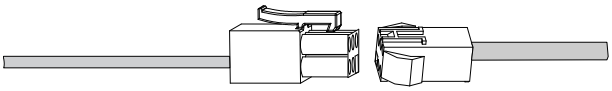


Figure 5-7 Power cable adapter scheme

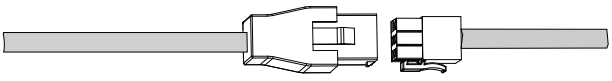
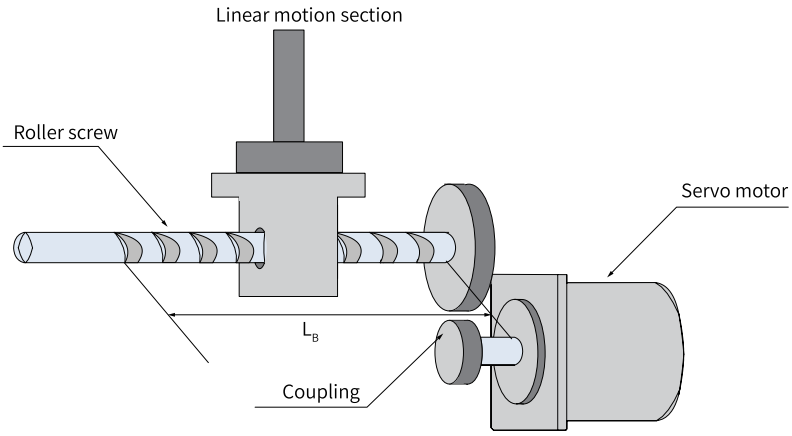


Figure 5-8 Encoder cable adapter scheme

6 Servo Motor Capacity Selection

6.1 Capacity Selection Example for Position Control



Load speed (V_L) = 15 m/min

Mass of the rectilinear motion part (m): 80 kg

Roller screw length (L_B): 0.8 m

Roller screw diameter (d_B): 0.016 m

Roller screw lead (P_B): 0.005 m

Coupling mass (m_c): 0.3 kg

Coupling outer diameter (d_c): 0.03 m

Times of feeding (n): 40/min

Length of feeding (L): 0.25 m

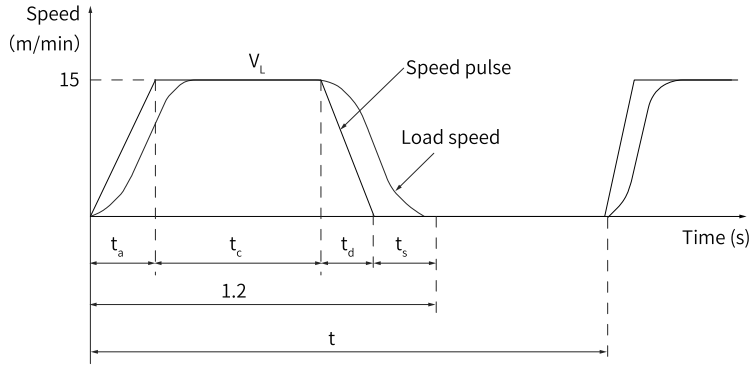
Feeding time (t_m) < 1.2s

Electrical stopping accuracy (δ) = ±0.01 mm

Friction coefficient (μ): 0.2

Mechanical efficiency (η) = 0.9 (90%)

1. **Speed diagram**



$$t = \frac{60}{n} = \frac{60}{40} = 1.5(s)$$

$$T_a = t_d, t_s = 0.1(s)$$

$$Ta = t_m - t_s - \frac{60L}{V_L} = 1.2 - 0.1 - \frac{60 \times 0.25}{15} = 0.1(s)$$

$$t_c = 1.2 - 0.1 - 0.1 \times 2 = 0.9(s)$$

2. **Speed**

- Rotational speed of the load shaft

$$n_L = \frac{V_L}{P_B} = \frac{15}{0.005} = 3000\ (rpm)$$

- Rotational speed of the motor shaft

  As the coupling is directly connected, the gear ratio (1/R) is 1:1.

$$n_M = n_L \times R = 3000 \times 1 = 3000\ (rpm)$$

3. **Load torque**

$$T_L = \frac{9.8\ \mu \times m \times P_B}{2\pi R \times \eta} = \frac{9.8 \times 0.2 \times 80 \times 0.005}{2\pi \times 1 \times 0.9} = 0.139\ (N \cdot m)$$

4. **Load moment of inertia**

- Rectilinear motion part

$$J_{LI} = m \times \left(\frac{P_B}{2\pi R}\right)^2 = 80 \times \left(\frac{0.005}{2\pi \times 1}\right)^2 = 0.507 \times 10^{-4}\ (kg \cdot m^2)$$

- Roller screw

$$J_B = \frac{\pi}{32} P \times L_B \times d_B^4 = \frac{\pi}{32} \times 7.87 \times 10^3 \times 0.8 \times (0.016)^4 = 0.405 \times 10^{-4}\ (kg \cdot m^2)$$

- Coupling

$$J_C = \frac{1}{8} m_c \times d_c^4 = \frac{1}{8} \times 0.3 \times (0.03)^2 = 0.338 \times 10^{-4}\ (kg \cdot m^2)$$

5. **Load moving power**

$$P_O = \frac{2\pi \times n_M \times T_L}{60} = \frac{2\pi \times 3000 \times 0.139}{60} = 43.7\ (W)$$

6. **Load acceleration power**

$$P_a = \left(\frac{2\pi}{60} \times n_m\right)^2 \frac{J_L}{t_a} = \left(\frac{2\pi}{60} \times n_m\right)^2 \times \frac{J_{LI} + J_B + J_C}{t_a}$$

$$= \left(\frac{2\pi}{60} \times 3000\right)^2 \times \frac{1.25 \times 10^{-4}}{0.1} = 123.4\ (W)$$

7. **Temporary settings of the servo motor**

- Selection condition

  $T_L \leq$ Rated torque of the motor

  $P_a + P_o =$ (1 to 2) x Rated output of the motor

  $n_M \leq$ Rated speed of the motor

  $J_L \leq$ Allowable load moment of inertia of the servo unit

  Perform the following provisional selections according to preceding conditions:

  Servo motor: MS1H1-20B30CB-V631R-INT

  Servo drive: SV680PS1R6I-GINT

- Specifications of the servo motor and servo drive

Rated output: 200 (W)

Rated speed: 3000 (RPM)

Rated torque: 0.64 (N·m)

Maximum instantaneous torque: 1.95 (N·m)

Rotor moment of inertia: 0.082×10^{-4} ($kg \cdot m^2$)

Allowable load moment of inertia: 1.64×10^{-4} ($kg \cdot m^2$)

Number of encoder pulses: 67108864 (P/R)

8. **Confirmation of the servo motor selected temporarily**

Confirm the startup torque required

$$T_p = \frac{2\pi \times n_M \times (J_M + J_L)}{60 \times t_a} + T_L = \frac{2\pi \times 3000 \times (0.082 + 1.25) \times 10^{-4}}{60 \times 0.1} + 0.139$$

$= 0.557\ (N \cdot m) <$ Max. instantaneous torque...Satisfactory

Confirm the braking torque required

$$T_s = \frac{2\pi \times n_M \times (J_M + J_L)}{60 \times t_a} - T_L = \frac{2\pi \times 3000 \times (0.082 + 1.25) \times 10^{-4}}{60 \times 0.1} - 0.139$$

$= 0.279(N \cdot m) <$ Max. instantaneous torque...Satisfactory

Confirm the effective torque value

$$T_{rms} = \sqrt{\frac{T_p^2 \times t_a + T_L^2 \times t_c + T_s^2 \times t_d}{t}}$$

$$= \sqrt{\frac{(0.557)^2 \times 0.1 + (0.139)^2 \times 0.9 + (0.279)^2 \times 0.1}{1.5}}$$

$= 0.19\ (N \cdot m) <$ Rated torque...Satisfactory

The capacities of the servo motor and servo drive selected temporarily based on preceding steps are available for use. The position control analysis is as follows.

9. **Electronic gear ratio (B/A)**

The electrical stopping precision (δ) is ±0.01 mm, so the position detection unit (△L) is 0.01 mm/pulse.

$$\frac{P_B}{\Delta L} \times \frac{B}{A} = \frac{5}{0.01} \times \frac{B}{A} = 67108864$$

$$\frac{B}{A} = \frac{67108864 \times 0.01}{5} = \frac{67108864}{500}$$

10. **Reference pulse frequency**

$$v_s = \frac{1000 \times V_L}{60 \times \Delta L} = \frac{1000 \times 15}{60 \times 0.01} = 25000\ (pps)$$

11. **Offset counter droop pulse**

- Set the position loop gain (Kp) to 30 (I/s).

$$\varepsilon = \frac{V_s}{K_p} = \frac{25000}{30} = 833\ (pulse)$$

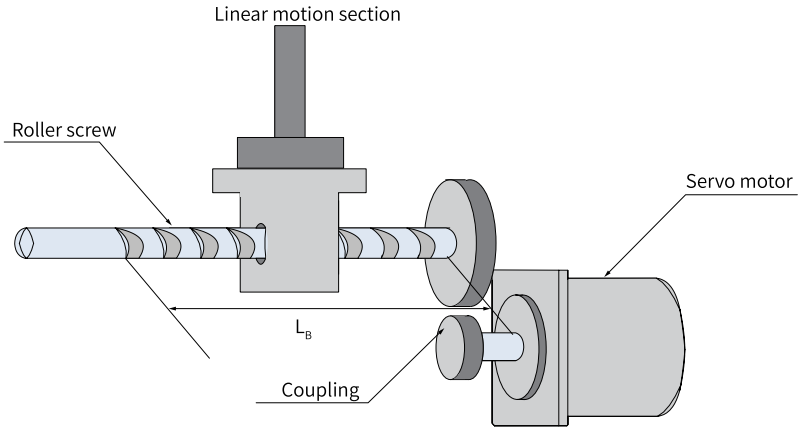
- Electrical stopping precision

$$\pm\Delta\varepsilon = \pm\frac{\varepsilon}{(\text{Servo drive control range}) \times \frac{n_M}{n_R}} = \pm\frac{833}{5000 \times \frac{3000}{3000}}$$

$$= \pm 0.17 < \pm 1\,(\text{pulse}) \pm 0.01\,(\text{mm/pulse})$$

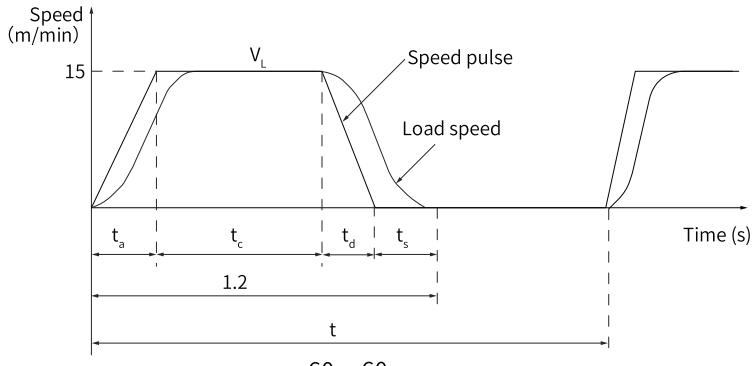
By observing preceding steps, the servo motor and servo drive selected temporarily for position control are available for use.

6.2 Capacity Selection Example for Speed Control



Load speed (V_L) = 15 m/min
Mass of the rectilinear motion part (m): 80 kg
Roller screw length (L_B): 0.8 m
Roller screw diameter (d_B): 0.04 m
Roller screw lead (P_B): 0.01 m
Coupling mass (m_c): 1 kg
Coupling outer diameter (d_c): 0.06 m
Times of feeding (n): 40/min
Length of feeding (L): 0.25 m
Feeding time (t_m) < 1.2s
Friction coefficient (μ): 0.2
Mechanical efficiency (η) = 0.9 (90%)

1. **Speed diagram**



$$t = \frac{60}{n} = \frac{60}{40} = 1.5(s)$$

Set t_a to the same value as t_d.

$$t_a = t_m - t_s - \frac{60 \times L}{V_L} = 1.2 - 0.1 - \frac{60 \times 0.25}{15} = 0.1(s)$$

$$t_c = 1.2 - 0.1 - 0.1 \times 2 = 0.9(s)$$

2. **Speed**

- Rotational speed of the load shaft

$$n_L = \frac{V_L}{P_B} = \frac{15}{0.01} = 1500\ (rpm)$$

- Rotational speed of the motor shaft

  As the coupling is directly connected, the gear ratio (1/R) is 1:1.

$$n_M = n_L \times R = 1500 \times 1 = 1500\ (rpm)$$

3. Load torque

$$T_L = \frac{9.8\ \mu \times m \times P_B}{2\pi \times R \times \eta} = \frac{9.8 \times 0.2 \times 80 \times 0.01}{2\pi \times 1 \times 0.9} = 0.277\ (N \cdot m)$$

4. **Load moment of inertia**

- Rectilinear motion part

$$J_{LI} = m \times \left(\frac{P_B}{2\pi R}\right)^2 = 80 \times \left(\frac{0.01}{2\pi \times 1}\right)^2 = 2.02 \times 10^{-4}\ (kg \cdot m^2)$$

- Roller screw

$$J_B = \frac{\pi}{32} P \times L_B \times d_B^{\ 4} = \frac{\pi}{32} \times 7.87 \times 10^3 \times 1.4 \times (0.04)^4 = 27.7 \times 10^{-4}\ (kg \cdot m^2)$$

- Coupling

$$J_C = \frac{1}{8} m_c \times d_c^{\ 4} = \frac{1}{8} \times 1 \times (0.06)^2 = 4.5 \times 10^{-4}\ (kg \cdot m^2)$$

5. **Load moving power**

$$P_O = \frac{2\pi \times n_M \times T_L}{60} = \frac{2\pi \times 1500 \times 0.277}{60} = 43.6\ (W)$$

6. **Load acceleration power**

$$P_a = \left(\frac{2\pi}{60} \times n_m\right)^2 \times \frac{J_L}{t_a} = \left(\frac{2\pi}{60} \times n_m\right)^2 \times \frac{J_C + J_B + J_{LI}}{t_a}$$

$$= \left(\frac{2\pi}{60} \times 1500\right)^2 \times \frac{34.22 \times 10^{-4}}{0.1} = 844\ (W)$$

7. **Temporary settings of the servo motor**

- Selection condition

  $T_L \leq$ Rated torque of the motor

  $P_a + P_o =$ (1 to 2) x Rated output of the motor

  $n_M \leq$ Rated speed of the motor

  $J_L \leq$ Allowable load moment of inertia of the servo unit

Perform the following provisional selections according to preceding conditions:

Servo motor: MS1H4-75B30CB-V631R-INT

Servo drive: SV680PS5R5I-GINT

- Specifications of the servo motor and servo drive
  Rated output: 750 (W)

  Rated speed: 3000 (RPM)

  Rated torque: 2.39 (N·m)

  Maximum instantaneous torque: 8.365 (N·m)

  Rotor moment of inertia: 1.38×10^{-4} (kg·m²)

  Allowable load moment of inertia: 69.58×10^{-4} (kg·m²)

8. **Confirmation of the servo motor selected temporarily**

Confirm the startup torque required

$$T_p = \frac{2\pi \times n_M \times (J_M + J_L)}{60 \times t_a} + T_L = \frac{2\pi \times 1500 \times (1.38 + 34.22) \times 10^{-4}}{60 \times 0.1} + 0.277$$

$$= 5.87\ (N \cdot m) < \text{Max. instantaneous torque...Satisfactory}$$

Confirm the braking torque required

$$T_s = \frac{2\pi \times n_M \times (J_M + J_L)}{60 \times t_a} - T_L = \frac{2\pi \times 1500 \times (1.38 + 34.22) \times 10^{-4}}{60 \times 0.1} - 0.277$$

$$= 5.32\ (N \cdot m) < \text{Max. instantaneous torque...Satisfactory}$$

Confirm the effective torque value

$$T_{rms} = \sqrt{\frac{T_p^2 \times t_a + T_L^2 \times t_c + T_s^2 \times t_d}{t}}$$

$$= \sqrt{\frac{(5.87)^2 \times 0.1 + (0.277)^2 \times 0.9 + (5.32)^2 \times 0.1}{1.5}}$$

$$= 2.06(N \cdot m) < \text{Rated torque…Satisfactory}$$

9. **Selection result**

The servo motor and servo drive selected temporarily according to preceding steps are available for use. The torque diagram is as follows.

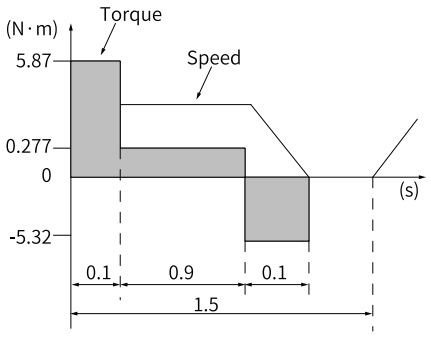


Figure 6-1 Torque diagram

7 Standards Compliance

CE Certification

Directive	Standard	
EMC Directive 2014/30/EU	Servo drive	EN 61800-3
	Servo motor	EN 61800-6-2 EN 61800-6-4 EN 55011
Low Voltage Directive 2014/35/EU	Servo drive	EN 61800-5-1
	Servo motor	EN 60034-1 EN 60034-5
RoHS Directive 2011/65/EU 2015/863/EU	Servo drive	EN 50581
	Servo motor	

UL/cUL certification

Certification	Standard	
UL/cUL certification	Servo drive	UL61800-5-1 C22.2 No.274-17
	Servo motor	UL 1004-1 UL 1004-6 CSA C22.2 No. 100-14

Note

- The product complies with the latest version of directives and standards for CE and UL/cUL certifications.
- The product complies with UKCA certification.

8 Service and Support

Should you encounter a safety accident during the use or operation of the product, or face challenges in operating and maintaining the equipment, which remain unresolved after the relevant documentation is consulted, we provide multiple channels to ensure prompt resolution:

- Channel #1: Contact service@inovance.com.
- Channel #2: Visit https://www.inovance.com/global to access document downloads, after-sales support, spare parts ordering, repair applications, and authenticity verification services.
- Channel #3: Download My Inovance app (https://zshc-eu.inovance.com/download-pc/) where you can access products info and documentation, and query product parameters.

We are committed to providing you with quick and professional technical support, and we look forward to your satisfaction and trust.

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